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GLAUCOMA, WITH SPECIAL REFERENCE TO MEDICAL ASPECTS AND EARLY DIAGNOSIS*

BY

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The reference in the title of this discussion is very wide, and this paper is concerned only with clinical experience in connexion with that form of primary glaucoma known as chronic or simple glaucoma. By primary glaucoma is meant increased intraocular pressure of unknown causation. The forms of glaucoma referred to as subacute, acute, congestive, or inflammatory are to be regarded as exacerbations in simple glaucoma, from which they differ only in violence but not in essential nature. If the exacerbation is slight it leads merely to slight discomfort and the presence of haloes, symptoms which have been called prodromata. If the exacerbation is rapid and severe, venous obstruction may be brought about and the more violent forms of glaucoma arise. It is an advantage to the patient if he should have slight occasional rises of pressure—especially in the earlier stages—as in this way timely attention may be directed towards the disease.

The cause of glaucoma is still unknown. As predisposing causes many conditions are recognized, such as hypermetropia, shallowness of the anterior chamber and narrowness of the angle, and small size of the cornea. Some of these conditions—for example, shallowness of the anterior chamber—are often the result rather than a cause of glaucoma, and others are manifestations of hereditary imperfection in the development of the eye. None of these conditions cause glaucoma, though they may render its occurrence more probable.

The chief features present in glaucoma cases are, first, that the patients are elderly, and secondly, that they are of an anxious, nervous temperament. When glaucoma occurs in the young there is usually a family history, indicating the predominance of hereditary factors. It is a disease which is common in all classes of society, and is therefore largely independent of nutritive or hygienic conditions. It is also important to note that both eyes are always affected, though the intervening time interval may be considerable. We must therefore regard glaucoma as a disease of the patient and not a disease of the eye, and the recognition of the glaucoma patient before he exhibits a glaucomatous eye may in the future become an important, though, no doubt, a difficult and uncertain, part of the early diagnosis of the condition. At the present time the diagnosis can hardly be made in this stage unless accidentally during routine examination.

Symptomatology and Diagnosis

The most usual symptom of which the patient complains is the presence of recurrent dimness of vision in one eye. This may last for a few hours or for a day, but disappears spontaneously. Other symptoms, such as discomfort in the eye, watering, loss of accommodation, and diminution of light sense may be present, but in comparison with diminution of vision and haloes are of much less value in diagnosis. These symptoms indicate exacerbations of pressure, and may be present for many years before a subacute or acute attack of glaucoma occurs, or before cupping of the disk or changes in the field of vision develop. In relation to acute glaucoma they have been called prodromata, but they are clearly signs of the established presence of glaucoma rather than of its commencement. Glaucoma commences without symptoms. That this is true may be inferred from the results of careful and prolonged study of the tension of the normal eye in cases in which definite glaucoma is present in one eye.

The early diagnosis of glaucoma depends upon the correct interpretation of the patient's symptoms and the early recognition of the presence of hypertension. It is essential that the most careful attention should be given to the patient's account of his symptoms, and any inclination to belittle them or explain them away should be resisted.

Tension Changes

In the most insidious type of glaucoma the rise of pressure is so gentle and so gradual that no symptoms whatever may be produced until the later stage. The pressure is now higher and the field of vision is failing, but even the slightest exacerbation may be absent, and no discomfort or haloes occur to attract attention.

In these cases the disease, often in a relatively advanced stage, may be first noticed during the routine examination for glasses, or the patient may accidentally find that he does not see well with one eye. Unless discovered in some such way the presence of the disease escapes detection. It is in cases in which the patient has symptoms but the objective signs are absent or inconclusive that the problem arises in practice.

In such instances the tonometer should be freely used. My experience has led me to believe that this valuable instrument is not used as often as it should be. The standard of normal tension by the original Schiötz tonometer was estimated in 1917 by Cridland[12] as just above 20 mm., but my personal experience suggests that it is usually slightly lower. A much more difficult point is the maximum standard for non-pathological cases. This has been stated to be about 25 mm., but here again I am very suspicious of eyes which show a tension of over 22. Even if the tension should be found quite normal glaucoma is not excluded. This is explained by Löhlein[13] on the ground that the intraocular pressure rises during the night and may have fallen at the time that the examination is made, and he states that this diurnal variation should not

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exceed 5 mm. in healthy eyes. I have no experience of testing suspicious cases in the early hours of the morning, a procedure which is usually inconvenient and often impracticable, nor have I any personal knowledge of cases in which this method proved helpful.

A plan which I have adopted in several cases with apparent success is the administration of eserine. In the normal eye a drop of eserine solution produces only a slight, if any, alteration in tension, but in many glaucomatous eyes, in which the tension does not appear to be unduly high, a distinct fall occurs within an hour. When this occurs the tentative diagnosis of glaucoma is strongly supported. On the other hand, I have not found that temporary mydriasis causes an increase of the tension in such cases, and I have no hesitation in dilating the pupils, if necessary, with a drug such as euphthalmin. (It is interesting to note that in secondary glaucoma a moderately high tension appears to be tolerated much better than in primary glaucoma. Is it possible that the explanation is that in secondary glaucoma the patient is not a glaucoma patient although he has a technically glaucomatous eye?)

Field Changes

Another sign in glaucoma, which is sometimes of value in diagnosis, though as a rule of more importance in prognosis, is the typical change in the field of vision. It is hardly necessary to point out that field changes, while they may occur at a relatively early stage in the patient's history, cannot be initial symptoms, and can only be present when the glaucomatous process has existed for a considerable period. Only very rarely can even the earliest field changes be found before ophthalmoscopically visible alterations are present in the optic disk. From cases sent for consultation one obtains the impression that in eyes in which suspicious symptoms are present the elicitation of the field change referred to as " enlargement of the blind spot " is regarded as of value in determining the diagnosis. The diagnostic value of field changes in glaucoma is relative, and depends on the presence of other symptoms, such as tension. Many years ago the statement " no scotoma, no glaucoma " was widely believed, and in its more recently modified form " no enlargement of the blind spot, no glaucoma " still claims adherents.

Since field changes in glaucoma can only occur as a result of the glaucomatous process, there is a period as long as eight or ten years or more, following the beginning of the disease, during which no field changes are present. This period may be called the *pre-perimetric stage* of glaucoma. The more expert we become in detecting the earliest signs of field alteration the shorter will be the pre-perimetric stage. Similarly, the point at which glaucoma can be diagnosed in the pre-perimetric stage will depend upon our skill and judgement in ascertaining and assessing the value of other symptoms and signs, which the patient may present if he asks for advice in this stage. The more easily we become able to recognize glaucoma in the pre-perimetric stage the more we shall find that the chief value of the field changes is in prognosis, and in supporting a diagnosis already made rather than in initiating it.

Apart from confirming an opinion already formed, perimetry has a definite diagnostic value in a fairly large group of cases in which the usual clinical picture of glaucoma is in one or more important features incomplete, and yet the oculist has reasons for suspecting its presence. It is evident that in the practice of different oculists the line between definite glaucoma and suspected or possible glaucoma will not be fixed, but will vary according to the methods of examination and the attitude of mind of the individual. The less prominent the other features of the clinical picture the greater is the value of perimetry in diagnosis, and the greater the necessity for its careful application ; nevertheless, in a case in which no other signs or symptoms have been found a positive diagnosis on the strength of field changes alone should be made only with the greatest caution.

Classification of Cases

From the point of view of perimetry these cases of possible or suspected glaucoma may be considered in two chief groups, according as to whether gross field changes are present or not.

Group I : No Obvious or Gross Field Changes Present.—These cases fall into five subdivisions. (*a*) *Neither symptoms nor signs are present.* The suspected eye appears in every way normal and healthy, but is suspected because definite glaucoma is present in the other eye. (*b*) *Symptoms alone are present.* A history of haloes, periods of ocular discomfort, or other suggestive features is given, but the optic disk and tension appear normal. (*c*) *Ophthalmoscopic signs alone are present.* Cupping or pallor of the optic disk, alone or together, found during routine examination, is the only sign which arouses suspicion. (*d*) *Increased intraocular pressure alone is present.* During routine examination the tension is found to be raised, but no other symptom or sign is elicited. (*e*) *Various combinations* of features already mentioned under (*b*), (*c*), and (*d*) may be present.

Group II : Gross and Easily Detected Field Changes Present.—Here the problem is not the detection of early field changes, but the proper interpretation of well-developed field changes, and this group does not come within the consideration of the early diagnosis of glaucoma.

Investigation of Group I Cases

In the first group the question is that of detecting the earliest field changes in glaucoma. These changes will be those which are found when the weakest practically applicable stimulus is used. Changes which are found by stronger stimuli are not likely to be the earliest changes. The stimulus may be reduced by diminishing the size of the test object, by increasing its distance from the eye, and by reducing the illumination by darkening the room. All three methods may be used ; if the last is used the object need not be so small.

Under the usual clinical conditions the weakest stimulus which I have found to be reliable is a 1 mm. white object used at 2 metres on the Bjerrum screen. If no defect is found with this test the examiner has been unable to elicit perimetric evidence of glaucoma on that day, but, as already pointed out, glaucoma is not absolutely excluded. If, however, other symptoms and signs are absent the eye may justifiably be regarded as healthy. The early field changes of glaucoma are of two types: (1) depression, and (2) the beginning of arcuate scotoma.

Depression of Central Field ("Baring of the Blind Spot")

The isopter for 1/2000, which normally extends to about 26 degrees all round, and includes the blind spot, is more or less contracted. It may fall within the 12-degree circle so that the blind spot is entirely outside it, or it may skirt round the inner side of the blind spot, leaving its outer or outer and upper part exposed, or, as it were, bared. It is rare to find this exposure at the lower pole of the blind spot. When the 1/2000 isopter is much contracted the baring of the blind spot may be demonstrable with an object twice the size—2/2000.

This baring of the blind spot at its outer and upper part was shown as long ago as 1906 by Sinclair,[9] [10] who drew attention to it as an early sign of glaucoma and referred to it as " Bjerrum's symptom." It is the earliest field change I have found in cases of suspected glaucoma. It would be unjustifiable to assert that it is never present

apart from glaucoma—I have, at any rate, never found it, nor has it ever been described in connexion with any other condition. A somewhat similar baring of the upper part of the blind spot occurs in the early stage of temporal hemianopia due to pituitary tumour, but its character is quite different, the defect lying more in the upper outer quadrant of the 1/2000 field.

It is interesting to note that although baring of the blind spot is undoubtedly the precursor of the arcuate scotoma, the arcuate scotoma does not appear to grow out of the baring, but seems to arise independently as a small curved scotoma on or about the 15-degree circle a little distance from the blind spot. The baring of the blind spot may be present in the upper part of the field, with an early arcuate scotoma in the lower part. When the

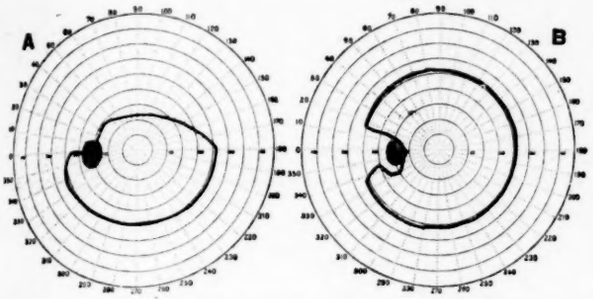

FIG. 1.—"Baring of the blind spot." After Sinclair.[9 10]

A, The left central field of a patient who had definite glaucoma in his right eye—1/2000. V. = 6/6. Peripheral field normal. No other symptoms of glaucoma present.

B, The left central field of a patient whose right eye was blind from glaucoma—2/2000. V. = 6/6. Peripheral field normal. No other symptoms of glaucoma present. Both of these fields are from apparently normal eyes in cases in which the other eye was glaucomatous. There was no abnormal tension in either case. It is not recorded whether the eyes ultimately became glaucomatous.

scotoma develops the baring seems to become merged in the depression of that part of the field, so that it is not present together with the more fully developed Bjerrum scotoma. Eserine may cause the baring wholly or partly to disappear.

CASE RECORD

Miss G. B., aged 32, was seen in June, 1925, complaining of haloes in the left eye. There were nearly seven dioptres of hypermetropia in each eye, with 6/9 vision with correcting lenses. When seen, both anterior chambers were shallow and both optic disks were normal. The tension was 15 Schiötz in the right eye and 13 in the left. The field of vision of the left eye showed depression for 1/2000, and a good field for 2/2000, but weak outside the blind spot. The field of the right eye was normal.

The patient was given meiotic drops for daily use and advised to report again soon. She did not return until nine years later, in 1934, when an attack of subacute glaucoma with high tension occurred in the left eye. In the intervening nine years there had been frequent attacks of haloes which had always been relieved by the drops, so that she had not considered it necessary to seek further advice. On the last occasion, however, the drops had not given relief. The tension of the right eye was 18. Under eserine the tension of the left eye dropped to 21–27 in six days.

In 1935, three weeks after operation (cyclodialysis) on the left eye, the conditions were as follows: right eye—vision = 6/9; disk healthy; field shows contraction for 1/2000 and a normal outline for 2/2000; tension 19. Left eye—vision = 6/12; disk healthy; field shows contraction for 1/2000 and slight weakness above and outside the blind spot for 2/2000; tension 8.5.

It is to be noted that although glaucoma was present in the left eye for at least nine years neither cupping of the disk nor "enlargement of the blind spot" developed. The diagnosis was made without difficulty in the pre-perimetric stage, and the only field change was a mere weakness above and outside the blind spot.

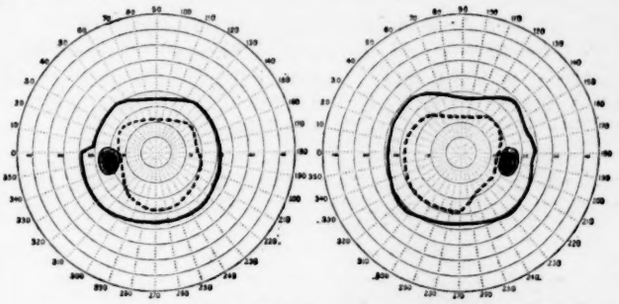

FIG. 2.—Central fields of the case, three weeks after operation on left eye. Contraction of isopters for 1/2000 and slight indentation above and outside blind spot for 2/2000 in left field. V. = 6/12. T. = 8.5. Right field normal for 2/2000, depressed for 1/2000. V. = 6/12. T. = 19. Under eserine.

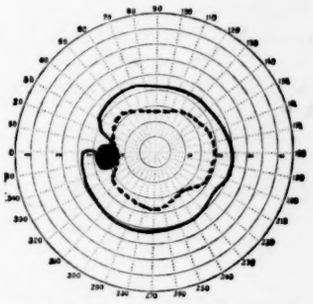

FIG. 3.—Left central field of patient who had lost the right eye from glaucoma. T. = 37, after eserine 23. Test objects 2/2000 and 1/2000. Baring of the blind spot. V. = 6/6. Disk normal. Two years later the tension rose to 40/50 and vision fell to 6/12, but even then "no constriction of the fields and no prolongation of the blind spot" were found. (B., 1923.)

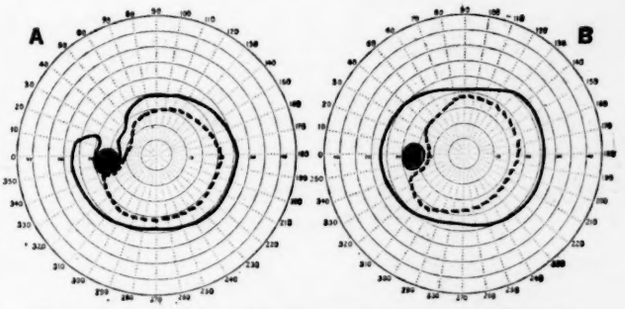

FIG. 4.—Case of suspected glaucoma. (January 14th, 1933.)

A, Left eye. V. = 6/9. T. = 23. Disk cupped. Field shows baring of blind spot for 2/2000 as well as for 1/2000. No arcuate scotoma or enlargement of the blind spot. Eserine reduced the tension to 18 in forty minutes.

B, Same field after fourteen days' treatment with eserine. Field for 2/2000 now normal. Baring of blind spot still present for 1/2000. This has remained. T. now = 18. V. = 6/18. In this case glaucoma has been present for two years at least without the development of "enlargement of the blind spot." (N., 1933.)

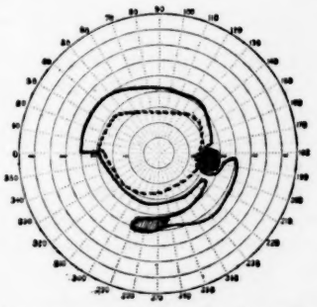

FIG. 5.—Baring of the blind spot in upper field, early arcuate scotoma and nasal step in lower field. Test objects 2/2000 and 1/2000. The scotoma is unconnected with the blind spot. T. = 23 (under eserine). V. = 6/9. Optic disk cupped. The other eye showed well-developed glaucoma. Shading indicates a dim area for 2/2000. (Mc., 1935.)

The Arcuate Scotoma (Bjerrum Scotoma)

A later field change is the development of an arcuate scotoma, which usually appears between one pole, more often the upper pole, of the blind spot and the vertical margin of the field 10 to 20 degrees from the centre. It is characteristic of this scotoma that it is narrower at the end which lies towards the blind spot and widens as it passes towards the nasal side of the field. It is, as a rule,

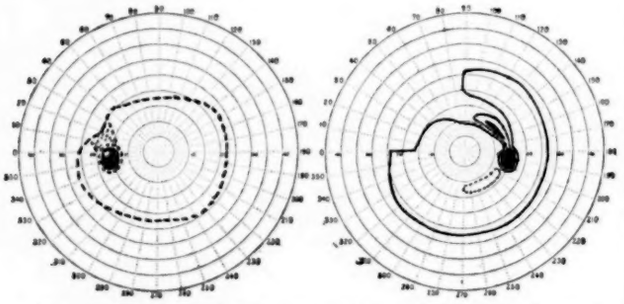

FIG. 6.—The patient had seen many oculists in America and England before the last one diagnosed glaucoma and referred her as she wished a second opinion. Right eye: V. = 6/6 +. T. = 15. Disk cupped. Field shows a typical arcuate scotoma above the nasal step, and a faint arcuate scotoma below. These changes were elicited with 1/2000; a larger object only showed the core of the upper scotoma. Had a larger object only been used the defect would have resembled a Seidel scotoma. It is to be noted that the most intense, and therefore presumably the oldest, part of the scotoma is unconnected with the blind spot. Left eye: V. = 6/6+. T. = 15. Field of 1/2000 shows slight depression, especially to outer and upper side of blind spot. Six months later her oculist reported that the changes in the right were less intense, and that the lower scotoma could not be elicited. (A., 1932.)

unconnected with the blind spot, and only establishes such a connexion in its more fully developed stages. It is therefore in no way an enlargement of the blind spot, and does not make its appearance as an out-growth from the blind spot.

Since the pre-existing retinal function is approximately the same all over the area corresponding to an arcuate scotoma near the fixation point it is unlikely that the

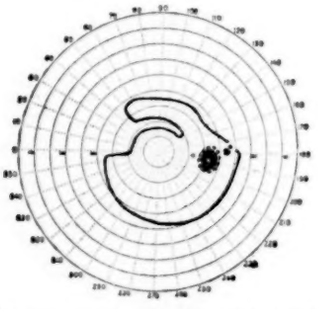

FIG. 7.—Right eye, early arcuate defect with nasal step which would have been missed had not a small object, 2/2000, been used. No enlargement of blind spot. V. = 6/5. T. = 25. Left eye definitely glaucomatous. (P., 1933.)

functional impairment would grow from one end to the other of a nerve fibre bundle in this situation. Such a development has never been demonstrated. In my experience the scotoma appears rapidly, and approximately simultaneously and evenly, over the area of a nerve fibre bundle when near the fixation point. Van der Hoeve,[3] Peter,[4 5] and Sloan[7] support the view that this scotoma begins independently of the blind spot. I have also noticed that the early arcuate scotoma is more frequently and more easily found in the upper field.

When more fully developed the arcuate scotoma crosses the vertical meridian and terminates on the nasal side of the field on the horizontal meridian, forming the nasal step. Occasionally this nasal portion of the scotoma with the nasal step is the only part demonstrable (Fig. 8A).

Unless a test as small as 1/2000 is used it may not be possible to elicit the whole extent of the scotoma, though the denser portion may be found with larger tests. If, however, only a part of the defect is discovered misconceptions as to its extent and relations may arise. Similar misconceptions may also be due to the method of examination, especially when the test object is moved in one direction only as when a revolving scotometer is used.

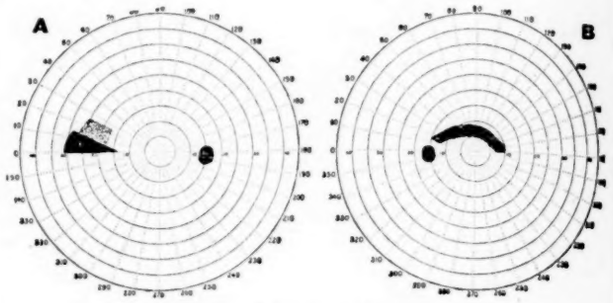

FIG. 8.—From van der Hoeve.

A, Central field showing nasal end only of arcuate scotoma. No enlargement of blind spot.
B, Arcuate scotoma without enlargement of blind spot.

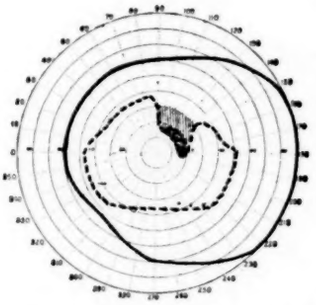

FIG. 9.—Case recorded by Roenne[1] as showing deep cupping, failing vision, and enlargement of the blind spot. Tension 8/7.5 Schiötz. Roenne regarded the state of the blind spot as evidence definitely against glaucoma.

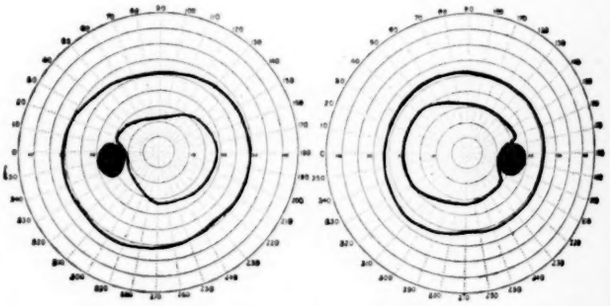

FIG. 10.—Glaucoma suspected on account of deeply cupped disks and impaired vision. Tension 18 in each eye, not appreciably reduced by eserine. R.V. = 6/12. L.V. = 6/9. Blind spot enlarged and bared, but very large test objects (20/2000, 40/2000) required to show this. Peripheral field for 125/330 greatly contracted. The enlargement of the blind spot is definitely against glaucoma. The field changes indicate functional amblyopia. Two years later, *in statu quo*. (W., 1932.)

The statement that enlargement of the blind spot is a pathognomonic early sign of glaucoma is therefore unacceptable. Glaucoma may be present without alteration in the blind spot, and the blind spot may be enlarged or modified apart from glaucoma. This doctrine appears repeatedly in the literature and has obtained wide acceptance, but if its origin is investigated it will be found that the statements on which it is based occur in papers written about twenty years ago (Fleischer,[6] Seidel[2]), that the test objects used were unnecessarily large, and that the findings were not adequately checked by the use of small test

objects and a large projection of the field defects. Thus the defects depicted by Seidel, for example, cannot be regarded as representing an initial stage. They were elicited by only moderately small objects and they were often present simultaneously at both poles of the blind spot, with which they were always continuous. Kirwan,[11] referring to glaucoma in epidemic dropsy, states that

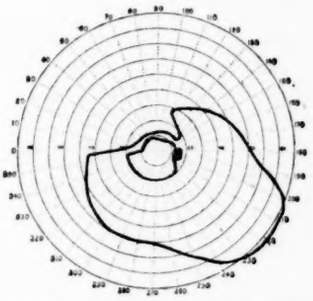

FIG. 11.—In this case glaucoma was first discovered when the patient's glasses were being revised. There had been no symptoms. The right field shows a nasal step for 5/330, with an arcuate scotoma approaching but not reaching the blind spot. Small objects did not show a scotoma continuous with the blind spot, but 2/2000 shows baring of the blind spot and a nasal step. V. = 6/6. T. = 23. Disk deeply cupped. Left eye normal. (T., April 30th, 1925.)

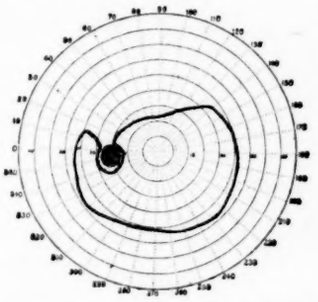

FIG. 12.—The same case as Fig. 11. Five years later the blind spot of the left eye, which had been carefully watched, was found to be bared (2/2000). V. = 6/6. T. = 35. Disk normal. Anterior chamber a little shallow. Peripheral field normal. (July 30th, 1931.)

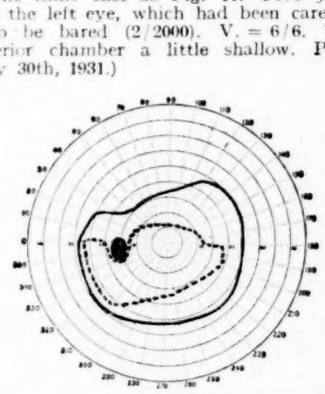

FIG. 13.—Two years later. 1/2000 shows baring of the blind spot, and a nasal step, not elicited by 2/2000. The latter object shows an indentation above dipping down towards the blind spot. V. = 6/6. T. = 23. Disk normal. Peripheral field normal. There is no enlargement of the blind spot or tuft-like scotoma. (July 1st, 1933.)

Seidel's sign can be demonstrated in the *later stages* according to the duration of the disease. In my experience the commencement of the arcuate scotoma is only discoverable by a very weak stimulus, and appears near, but not connected to, one pole of the blind spot, and not simultaneously at both poles. The scotoma of Seidel, unlike the Bjerrum scotoma, becomes narrower as it leaves the blind spot, and has a pointed termination, a differential feature to which attention has also been directed by Thomasson.[8] The Seidel scotoma is much more suggestive of a tracing of blood vessels than a nerve fibre bundle defect.

This arcuate scotoma often appears to spring into existence very rapidly and to remain in its initial stage for a very short time before it merges into the complete Bjerrum scotoma. If this were not the case it should be possible to discover it more frequently in cases of suspected glaucoma. In no case of suspected glaucoma of the type included in Group I, which I have examined with

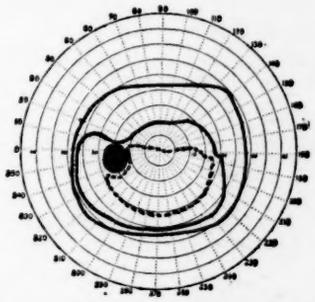

FIG. 14.—Nine months later. Left eye. Anterior chamber very shallow. Pupil minimal (eserine). T. = 20. Disk normal. Blind spot bared for 1/2000; for 2/2000 a weak area is present above blind spot. Field for 1/2000 now comes down almost to horizontal meridian. Small nasal step present. V. = 6/9. T. = 20. (December 18th, 1934.) Six months later, field practically unchanged. V. = 6/9. T. = 23. Eserine in constant use since 1931.

a small visual angle, have I ever found an enlargement or extension of the blind spot of a tuft or flame-like shape.

Discussion

In the first group, therefore, depression of the central field with baring of the blind spot is very suggestive of glaucoma and strongly supports the evidence afforded by the presence of other symptoms. The presence of a relative arcuate scotoma may be regarded as indicative of glaucoma which has existed for some time and has passed beyond the pre-perimetric stage.

The blind spot may be normal or may be enlarged or modified from causes other than glaucoma. Not only is this the case, but a true enlargement of the blind spot—that is to say, an enlargement with little or no alteration in shape but an increase in its diameters, as if it were viewed through a magnifying glass—(Fig. 10) is an uncommon and really accidental accompaniment of glaucoma. Enlargement of the blind spot of this type may be due to circumpapillary choroidal atrophy, which sometimes occurs in advanced glaucoma—especially in elderly people—or it may be functional. In itself it is not a positive sign of any value.

In Group II, referred to earlier in this paper, gross and easily detected field changes are present. This is a small group and the problem of diagnosis is much simpler. Well-developed field changes are never present in glaucoma without increased tension or pallor or cupping of the disk. Though in certain cases the field changes form a valuable feature of the clinical picture, and are of material assistance in the recognition of the disease, the question of early diagnosis does not arise in connexion with them and this group is consequently omitted from the present consideration.

Summary

1. Primary glaucoma is a disease of unknown origin mostly affecting elderly people of nervous temperament. It is essentially a disease of the patient rather than of the eye.

2. The various forms of glaucoma known as subacute, acute, congestive, or inflammatory are exacerbations in the course of primary glaucoma, and not different kinds of glaucoma.

3. The so-called prodromata of acute glaucoma are slight exacerbations, and are evidence that glaucoma has been present for a considerable period.

4. Glaucoma may exist for many years without producing any symptoms whatever and without producing any field changes.

5. The period between the beginning of the glaucomatous process and the development of field changes may be called the pre-perimetric stage.

6. The earliest field change produced is " baring of the blind spot."

7. " Enlargement of the blind spot " or a tuft-like or flame-shaped scotoma is not an initial field change. The arcuate scotoma is a relatively late field change and does not begin as an outgrowth from the blind spot.

8. There are three stages in early glaucoma. (1) The initial stage, without symptoms—the stage of the glaucoma patient. (2) The pre-perimetric stage, without field changes. (3) The stage presenting early field changes. The early diagnosis of glaucoma cannot be made in the first stage, but should usually be made in the second stage.

9. Glaucoma is to be diagnosed by the clinical picture as a whole, not by any one sign. The only pathognomonic sign is increased tension, and this is not always easily elicited.

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A meeting of the Tuberculosis Association will be held at 26, Portland Place, W., on Friday, November 22nd, at 5.15 p.m., when addresses will be given by Sir StClair Thomson on " Tuberculosis of the Upper Respiratory Tract " and Mr. H. R. Bickerton on " Tuberculosis of the Eye." At 8.30 p.m. Dr. E. L. Middleton and Dr. P. Heffernan will speak on " Industrialism and Tuberculosis." Further meetings of the association have been provisionally arranged as follows: In London, January 17th, 1936, Dr. Noel Bardswell, Dr. J. G. Johnstone, and Miss Marx, " After-care of the Tuberculous in London " ; Dr. James Maxwell, " Intestinal Tuberculosis " ; February 21st, Dr. H. H. Scott and Dr. C. H. C. Toussaint, " Primary Tuberculosis in Children and its Relation to Meningitis " ; Sir Henry Gauvain and Mr. G. R. Girdlestone, " Treatment of Tuberculous Lesions of Bones and Joints " ; May 15th, Sir Leonard Rogers and Dr. Andrew Morland, " Climate and its Relationship to Tuberculosis " ; Mr. J. E. H. Roberts and Dr. F. G. Chandler, " Recent Advances in Thoracoscopy and Adhesion Section." Cambridge meetings: April 2nd, Dr. Hagius van den Berg (Amsterdam), Dr. R. H. Hazemann (Paris), and Dr. N. Tattersall, " Dispensary Organization " ; Dr. Russell Reynolds, " Cinematography of the Chest " ; annual dinner at St. John's College. April 3rd, Professor Sayé (Barcelona), " Chronic Miliary Tuberculosis " ; Dr. Maurice Davidson and Dr. L. B. Stott, " Capacity for Work in Pulmonary Tuberculosis " ; visit to Papworth Settlement. April 4th, cases for discussion ; annual meeting.

OIL-SOLUBLE ANAESTHETICS IN RECTAL SURGERY

BY

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It is the purpose of this communication to introduce an improved formula of anaesthetics in oil, having a prolonged action, and being painless on injection, for the treatment of painful conditions particularly in and around the anus.

Since 1927, when Yeomans, Gorsch, and Mathesheimer introduced benacol for the treatment of pruritus ani, much attention has been given to local anaesthetics having a prolonged action. These workers used a solution consisting of equal parts of para-amino-benzoyl-benzoate and phenomethylol in ninety parts of rectified sweet almond oil. Oil was the solvent because, owing to the slow rate of diffusion from it of the dissolved anaesthetic substances, anaesthesia and relaxation of the musculature is prolonged. In this country Gabriel in 1929 employed A.B.A. (3 per cent. ethyl-para-amino-benzoate, 5 per cent. benzyl alcohol, and 10 per cent. ether in almond oil) ; an alternative solution being 0.5 per cent. percaine, 10 per cent. benzyl alcohol, and 1 per cent. phenol in almond oil. These solutions often gave rise to pain on injection and very often to severe pain several hours afterwards. The anaesthetic effect and the relaxation of the anal musculature were good but rather uncertain.

During the past two and a half years trial has been given to many and varying combinations of oil-soluble anaesthetics at St. Mark's Hospital, in the search for a solution which does not produce immediate or delayed pain after injection. Details of these experiments are given at the end of this article. The following formula has proved in a large number of cases to be the best: procaine base 1.5 per cent., butyl-para-aminobenzoate 6 per cent., benzyl alcohol 5 per cent., in sterilized almond oil. This solution owes its painlessness on injection to the adequate concentration of procaine base and to the elimination of ether. Its prolonged anaesthetic property is due partly to the slow rate of diffusion from the oil and partly to the prolonged action of the butyl-para-aminobenzoate. If this solution be sufficiently warmed and injected slowly it appears clinically that anaesthesia is almost immediate.

The advantages of this solution over those that have been previously tried are: (1) Its effect is almost certain. (2) The injection is painless, if given slowly. (3) In no case has there been any severe after-pain. (4) Anaesthesia or hypo-aesthesia is produced for periods varying from seven to twenty-eight days or longer. (5) Relaxation of the anal musculature is much greater and more prolonged. (6) The preparation is comparatively non-toxic ; 20 to 30 c.cm. may be injected without any general ill effect. (7) Even when a large quantity (30 c.cm.) is given on one occasion, no local reaction is observed if the injection is skilfully performed.

General Technique of Injection

Though the technique of injection has been admirably described by Gorsch, Gabriel, and others, there are certain modifications and improvements, as well as an extension of the uses of oil-soluble anaesthetics, that justify a full description of the method of injection. The large branches of the motor and sensory nerve supply of the perianal region, mainly the inferior haemorrhoidal nerves and the perineal branches of the fourth sacral nerves,

approach the anus from the postero-lateral aspect. They lie deeply in the subcutaneous fat, even at the anal verge, and pass inwards through the external sphincter muscles. The solution must therefore be injected into the deeper tissues at the inner boundary of the ischio-rectal fossae as well as into the more subcutaneous plane.

The ampoule of the anaesthetic solution is placed in hot water at a temperature of about 110° F. for a few minutes, and the contents drawn directly into a warm and dry 10 c.cm. syringe. The skin in the region of the injection is cleansed with spirit and iodine, and the injection is made with due care for asepsis. In nervous subjects an intradermal wheal is raised, using a small hypodermic needle (No. 20) and 1 per cent. procaine. Through this wheal the solution is injected into the deeper subcutaneous tissues, using a No. 8/10 needle. The injection is given very slowly and evenly, and the oil is placed ahead of the advancing needle ; no pooling of the solution should be allowed, and in no circumstances should it be injected into the skin or through the anal wall. If any swelling is seen the injection is not deep enough and sloughing may occur.

When the required amount has been injected, massage of the parts ensures an even distribution of the anaesthetic. On no account should an injection be given in the presence of acute sepsis. When there are excoriations the needle must be inserted through clean normal skin.

Fissure-In-Ano

In the cure of recent fissures with associated anal spasm this solution has been found most effective. It is also useful in the palliative treatment of more chronic indurated fissures before operation or in cases in which, for any reason, operation must be postponed or is contra-indicated.

A patient who was bed-ridden with advanced pulmonary tuberculosis and asthma suffered from severe pain and discomfort due to a chronic dorsal fissure. All local methods of treatment had failed. The injection of 10 c.cm. of the oily anaesthetic solution completely relieved his symptoms, and made him comfortable for several weeks.

Method of Injection

The patient is placed in the right or left lateral position. If there is extreme pain or spasm it is desirable to paint the fissure with a little aqueous solution of 2 per cent. percaine on a small pledget of cotton-wool wound round a probe before inserting the finger into the anus. The well-lubricated forefinger, its flexor surface toward the fissure, is gently inserted into the rectum, and the terminal joint slightly flexed so that the prominent muscle ring (ano-rectal ring) is gently hooked down towards the operator. It is important to keep this guiding finger quite still. The needle is then introduced in the midline posteriorly about one inch from the anal verge and the solution injected deeply into the sphincter muscles on one side of the anus. The direction and depth of injection is shown in Figs. 1 and 2. The anaesthetic is distributed in a fan-like manner as far forwards as the anterior edge of the anus and as deeply as the structures about 1/4 inch from the pulp of the inserted finger.

It will be noted that the injection is also placed at the outer aspect of the surrounding muscle—that is, the inner boundary of the ischio-rectal fossa. The opposite side is infiltrated in a similar manner without withdrawing the needle. Finally, the subjacent tissues about 1/4 inch on either side of the fissure are treated. From 5 to 10 c.cm. of the solution is necessary for a satisfactory result. Relaxation is usually immediate, and full anaesthesia occurs in a few minutes. The fissure is now treated by any of the many stimulating applications available, or the anus is gently dilated.

Recent fissures can almost always be cured by this method. The injection may be repeated at the end of ten or fourteen days if improvement has not followed the first injection. Failure is due to faulty technique, mainly to superficial or uneven injection. The muscle ring is much deeper than is usually thought, but it can be located with accuracy by the finger in the anal canal.

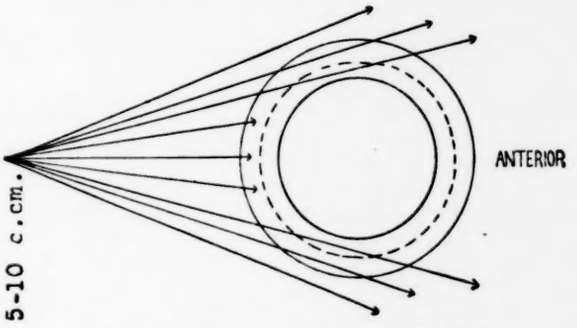

FIG. 1.—Direction of the injection for fissure.

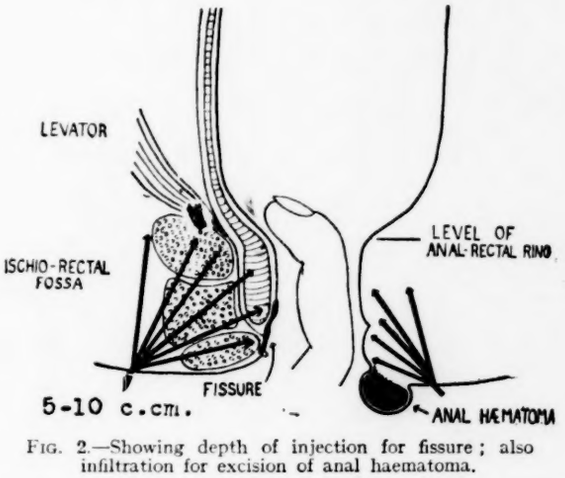

FIG. 2.—Showing depth of injection for fissure ; also infiltration for excision of anal haematoma.

Pruritus Ani

Varying success has followed the subcutaneous and deep injection of many different substances, including 1 in 3,000 hydrochloric acid, 40 per cent. alcohol, and meat broth, etc., for this distressing condition. Injection should only be carried out after thorough examination and elimination of any cause for the pruritus. I believe that failure to improve this condition in suitable cases has been due both to the use of too small quantities and to inaccurate infiltration. It is not claimed that this solution has any specific effect in the treatment of pruritus ani. All that it does is to cut off impulses from the irritable region for long periods. Rest is secured both for the patient and for the traumatized area ; the general health and mental stability of the patient are improved, and the damaged skin can now be adequately treated. Repeated small injections of 5 or 10 c.cm. on several occasions are undesirable ; no striking effect is produced, and, further, it has been observed that hyperaesthesia may occur where the treated and untreated areas join. Thirty c.cm. of this solution evenly distributed may be injected at one time.

Method of Injection

It is essential that the patient should be put to bed and should be under the supervision of a nurse, because diligent attention must be given to the skin after anaesthetization. A preliminary injection of hyoscine and morphine should be given three-quarters of an hour beforehand, and the injection should be carried out in

the lithotomy position. The skin round the anus is anaesthetized by injection of the oily solution, not only into the subcutaneous fat but also deeply into the ischio-rectal fossa along its inner wall. The injection is made in a fan-like manner through as few skin punctures as will enable accurate infiltration to be carried out; usually four or five punctures are necessary (Fig. 3).

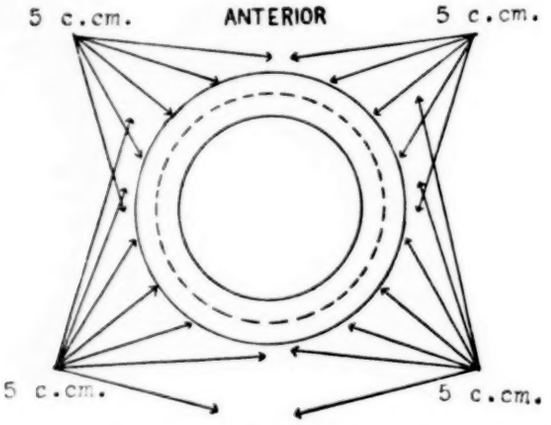

FIG. 3.—Injection for pruritus ani.

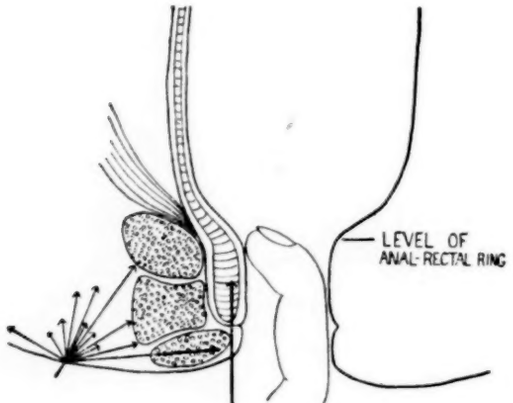

FIG. 4.—Details of deeper injection for pruritus ani.

It is important that the subcutaneous fat well up to the anal verge should be infiltrated (Fig. 4). It is here that care must be taken to keep the solution deeply under the skin. The lowest inch of the anal canal is the site of origin of many of the afferent nervous impulses. This fact is shown by the failure of Ball's operation if the nerve fibres passing inwards through the sphincter muscles to the lining of the anal canal are not divided by dissecting up the anal canal inside the muscle ring. For this reason a further injection should be made deeply on the inner side of the anal muscles. This is done by inserting the forefinger into the anal canal, and with the needle introduced about a quarter of an inch from the anal verge and parallel with the guiding finger, 2½ c.cm. of the solution is placed on each side of the canal, again in a fan-like manner, for the depth of one inch from the anal skin (Fig. 4). The solution must not be placed immediately under the lining of the anal canal.

It is important that the skin be kept scrupulously clean by removal of debris, etc., from between the thickened folds. This should be done twice daily and after defaecation, using warm water and white curd soap. It has been found that cauterization of the skin with silver nitrate stick immediately after the injection, followed by the daily application of 5 per cent. silver nitrate in spirit of nitrous ether for four or five days, is most effective for removing the superficial thickened skin layers. The rugae are flattened out and thorough cleansing in the future will be possible. When the skin has completely healed the application of the following lotion will harden the skin and so prevent further excoriation: solution of lead subacetate 7½ minims, industrial methylated spirits 120 minims, distilled water (recently boiled and cooled) to one fluid ounce.

CASE REPORT

A male, aged 48, had pruritus for years. For the past year he had been very much worse, and during this period had not slept properly. He had undergone all manner of treatments, including two courses of *x* rays. On examination he was a tired-looking man, miserable and hopeless. The perianal skin was thickened, pale, and sodden, with large hypertrophied rugae, presenting the appearance of old pigskin. Simple hygienic remedies failed to give any relief. He was therefore admitted into a nursing home, and under the influence of morphine and hyoscine the diseased area was thoroughly treated by the method to be described, using 30 c.cm. of the solution. Three small hypertrophied papillae were excised under this anaesthesia, and the skin cauterized with silver stick. The skin was cleaned with soap and water and spirit daily, and silver nitrate in spirit of nitrous ether was applied; this was carried out for six days; after this period simple calamine lotion containing glycerin was used. The patient had a slight degree of incontinence for two days following the injection, and complete numbness was noted for thirteen days. Six weeks afterwards there was hypo-aesthesia of the skin, which was now smooth, healed, and of normal appearance. The patient has improved in general health and has slept well since the treatment, and in a communication recently received—more than six months after the injection—he says that he only has an occasional itch after defaecation which lasts a few moments. He is well and sleeps throughout the night.

The duration of the effect of the injection is variable, but once the local symptoms have been relieved and the patient's general condition and mental outlook have improved simple attention to the skin in this region will prevent recurrence of severe pruritus. It has been observed that after the injection of 30 c.cm. of this solution hypo-aesthesia may remain for months. Should any area become sensitive after fourteen days a further small injection may be given in the affected region.

Minor Rectal Operations

Using this solution, ambulatory treatment of many minor conditions in and about the anus is possible. Anal haematomata (thrombosed external haemorrhoids), hypertrophied anal papillae, small fibrous polypi, etc., may be excised. From 5 to 10 c.cm. is usually sufficient for excision of a large anal haematoma, the injection being given into the subcutaneous tissues around it and also more deeply into the subjacent half of the sphincter. The mass and the skin covering it are excised, and any smaller and deeper clots sought for and also removed. A small dressing is applied and its corner tucked into the anus (Fig. 2).

Anal Spasm

This painful condition may be present without obvious cause, especially in the elderly and in patients who have had fluid stools for years. There appears to be in some cases fibrosis in the external sphincter, especially in its subcutaneous portion. The pain and symptoms can be relieved by injection, and the anus may be stretched daily by the passage of a graduated dilator. The subcutaneous sphincter, if definitely fibrosed, may be divided without using any further anaesthetic. Anal pain may be present, especially in women, without any obvious cause. Injection has completely relieved such patients of their symptoms.

Haemorrhoidectomy by Ligature and Excision

A radical operation for haemorrhoids can be performed after the injection of the subcutaneous tissues around the anus and also of the external sphincter. The technique of injection is similar to that recommended when aqueous procaine hydrochoride is used, but the oily solution must not be injected too superficially. The use of this solution as the sole anaesthetic for the operative treatment of haemorrhoids is not recommended except in certain instances. The chief indications are cases with complicating urinary diseases, old age, and other factors making the use of a general anaesthetic or the eminently satisfactory method of low spinal anaesthesia undesirable.

A man, aged 80, had very large, continually prolapsed internal haemorrhoids. The condition prevented him from getting about in his garden, and his life was unhappy. He was a frail old man, who certainly would not have stood a general anaesthetic and would undoubtedly have had trouble with micturition after a low spinal anaesthetic. A radical operation was performed after injecting 25 c.cm. of procto-caine. He had no post-operative pain whatsoever, and sat up in the ward daily after the first twenty-four hours.

Control of Post-operative Pain

A good deal of attention has been given to methods of minimizing post-operative pain, and various substances have been used to diminish pain after rectal operations. Wheeler and Hertzler have pointed out the value of certain anaesthetics in reducing pain, and the latter used diothane, which is a derivative of phenyl-urethane, with success. Since this substance must be injected into the skin its limitations and objections are obvious. Hayes and Stone have used anaesthetics in a similar manner, and Best recommends the use of carbolized vaseline containing percaine.

The injection of 10 or 15 c.cm. of the solution, distributed in a fan-like manner through a single puncture about one and a half inches behind the anus, before the operation has commenced, undoubtedly has reduced post-operative pain and especially the pain on defaecation. It has been found that the insertion of dressings into the anal canal is attended with much less pain and discomfort.

This combination of anaesthetics in oil is effective and without danger when used in suitable cases and when the technique of injection is rigidly followed. Oil-soluble local anaesthetics have earned a permanent and useful position in rectal surgery. It is likely that in the future, with further pharmacological advances, their use will extend into other branches of surgery.

Details of Solutions Used

Solutions containing ether or phenol should be used with care, for the irritating effect of these substances in the tissues may be severe if used in quantity. Ether was included in the original formula to increase the solubility of the ethyl-para-aminobenzoate and to diminish the viscosity of the solution. It was found that ether was unnecessary, and its elimination from the solutions considerably reduced both the pain of injection and the after-pain.

Benzyl alcohol is said to be non-toxic and non-irritating; it possesses considerable anaesthetizing powers, and, in addition, is a valuable solvent, being itself soluble both in water and in oil. It facilitates the gradual diffusion of the other drugs from the oily vehicle to the tissues, and produces a uniform and prolonged anaesthesia. Benzyl salts (benzyl succinate 15 per cent. and benzyl benzoate) were tried as substitutes for the alcohol, but they did not reduce the pain and were not as effective in producing relaxation. It was concluded, therefore, that benzyl alcohol is an essential ingredient in the solution. The addition of chlorbutol (2 per cent.) did not enhance the efficiency of the solution. The vehicle also came under review, but almond oil was found to be the least viscid of the vegetable oils.

In order to overcome the pain on injection and possibly to increase the duration of the anaesthesia, it was decided, in 1932, to add procaine to the formula. Procaine salts are insoluble in oil, but procaine base is soluble in oil, 1 part in 33. Procaine base was therefore added to the solution, first in a concentration of 0.25 per cent., but this was soon increased to 0.5 per cent. This concentration certainly reduced the pain of injection and also the frequency of after-pain, and the anaesthetic effect appeared to be increased.

Concentrations of ethyl-para-aminobenzoate up to 4 per cent. were used; it was impossible to increase this amount owing to its limited solubility. In 1934 Gorsch introduced a solution called anucaine, containing 5 parts of ethyl-para-aminobenzoate, 1 part butyl-para-aminobenzoate, 5 parts benzyl alcohol, and 1/8 part procaine, in sweet oil. He found this solution more efficient than the others he had tried, and he has used it extensively without any ill effects either local or general. For pruritus ani he recommends using 15 c.cm. in two separate injections, followed by a further 5 c.cm. on a third occasion, if necessary. After using Gorsch's solution, butyl-para-aminobenzoate was substituted for the ethyl salt, since it was found possible to dissolve it in oil up to 8 per cent. Furthermore, it has greater anaesthetic properties, and is probably less irritating than the ethyl derivative. It acts both on the nerve endings and on the nerve trunks, and induces a prolonged anaesthesia.

The following solution was tried in thirty-six cases: procaine base 0.5 per cent., butyl-para-aminobenzoate 6 per cent., and benzyl alcohol 5 per cent., in sterilized almond oil.

Seventeen cases of anal fissure, ten of anal haematoma (excision), four of spastic anus, two of polypi and hypertrophied skin tags (excision), one of hypertrophied anal papilla, one of a torn anal crypt, and one of severe pruritus were treated. Except in the case of pruritus, where 15 c.cm. was injected, the amount of the solution used varied from 5 to 10 c.cm. Pain on injection was noted in one case. The immediate anaesthetic effect was good except in one case of fissure. After-pain was reported in three cases. The duration of the anaesthesia was variable—as long as a fortnight in several cases, but the average duration was eight to ten days.

The results so far were satisfactory, but it was sought to improve this solution with a view to increasing its certainty and rapidity of action. The amount of procaine base was therefore increased. Procaine (diethylamino-ethyl-para-amino-benzoate) has a similar physiological action to butyl-para-aminobenzoate); it acts more promptly, but the anaesthesia is less prolonged. The balance of evidence goes to prove that the toxicity of procaine base is no greater and is probably less than the hydrochloride.

When the base is administered in oil its toxicity must be extremely low owing to its very gradual liberation from the solvent. Since more than 30 c.cm. of 2 per cent. aqueous solution of the salt of procaine may be injected without ill effect, the use of 30 c.cm. of a solution containing 1.5 per cent. procaine base in oil must be quite safe. Increasing the amount of procaine in the solutions under trial rendered them more certain in their immediate action. Varying concentrations both of procaine and of butyl-para-aminobenzoate were tried. The following is the formula of the solution found to be the most effective: procaine base 1.5 per cent., butyl-para-aminobenzoate 6 per cent., benzyl alcohol 5 per cent., in sterilized almond oil.

Toxicity of Constituents

Regarding the toxicity of the various constituents of this solution it was found difficult to obtain references to experimental work on animals. It was therefore thought advisable to carry out toxicity tests, and these have been performed in the pharmacological laboratories of the Pharmaceutical Society. I think it may be assumed that if there is a direct relation between the average lethal dose for a mouse and for a man, then the average lethal dose of the solution for a man weighing 10 st. (60 kg.) is of the order of 900 to 1,000 mils. The maximum dose recommended, 30 c.cm., should be quite free from toxicity.

The solutions were injected subcutaneously into groups of mice, each averaging about 20 grams in weight, in three or four different doses, using at least ten mice on each dose. The

solutions were: A, 6 per cent. of butyl-para-aminobenzoate in oil; B, 1.5 per cent. of procaine in oil; and C, proctocaine. The mice after injection were kept under observation throughout thirty-six hours and the final mortalities recorded. Results are shown in Tables I, II, and III, from which the average lethal dose of each solution was calculated—that is, the dose calculated to kill 50 per cent. of a group of mice. The average lethal doses of the Solutions A, B, and C are shown in Table IV.

TABLE I.—*Toxicity of Solution A on Mice*

Dose of Solution per Mouse (Subcutaneously)	Number of Deaths	Percentage Mortality
mil. 0.25	0 out of 12	0
0.5	7 „ 20	35
0.7	5 „ 14	36
1.0	11 „ 15	73

TABLE II.—*Toxicity of Solution B on Mice*

Dose of Solution per Mouse (Subcutaneously)	Number of Deaths	Percentage Mortality
mil. 0.25	0 out of 10	0
0.5	8 „ 20	40
0.7	11 „ 16	79

TABLE III.—*Toxicity of Solution C on Mice*

Dose of Solution per Mouse (Subcutaneously)	Number of Deaths	Percentage Mortality
mil. 0.25	6 out of 20	30
0.4	15 „ 19	80
0.5	9 „ 10	90

TABLE IV

Solution	Composition	Approximate Average Lethal Dose in Mils per 20-gram Mouse
A	Butyl-para-aminobenzoate	0.76
B	Procaine	0.55
C	Proctocaine	0.31

It will be seen from these results that proctocaine is toxic towards mice in a dose of 0.31 mg. per 20 grams body weight of mouse.

Results Obtained

Fissure-in-Ano.—Of forty-one cases of fissure-in-ano, thirteen were quite recent fissures and healed after the injection. In three cases the anaesthesia produced was sufficient to allow the subcutaneous external sphincter to be divided without pain either during the operation or afterwards. In only one case was no anaesthetic effect observed. In this case, with a deeply indurated fissure, it is believed that insufficient solution was injected. In five cases a very slight soreness followed the injection, but all the patients could work after treatment. No severe pain was encountered except in one case of multiple fissures, where there was severe pain two days afterwards; this was undoubtedly due to inadequate injection. The length of the anaesthesia varied from seven to twenty-eight days, the average being about fourteen days. In one case the injection was repeated in twenty-one days, after which the fissure healed. The average amount injected was 5 to 10 c.cm.

Anal Haematomata.—In nineteen cases anal haematomata were excised, and in only one was the anaesthesia poor and of short duration. Five c.cm. of the solution was the average amount used.

Haemorrhoidectomy.—Eight cases were operated on for internal haemorrhoids using this solution only. Anaesthesia was good, except in one case, where the hypo-aesthesia necessitated a supporting injection of aqueous procaine hydrochloride. There was little or no post-operative pain in these cases, and at the most there was slight soreness on defaecation. Relaxation of the sphincter usually lasted for five to seven days, but in one case it lasted for sixteen days after operation. In two cases there was marked relaxation for nine and fourteen days. There was some feeling of uncertainty during defaecation in two cases, but true incontinence did not occur. Normal sensation and muscle power returned in all cases. From 15 to 25 c.cm. of the solution was injected.

Control of Post-operative Pain.—Preliminary injection of proctocaine before operation was tried in eleven cases, and great reduction in incidence and severity of post-operative pain was noted. In one case severe spasm after an operation for fissure performed under a low spinal anaesthetic was completely relieved by an injection of the anaesthetic solution several days after the operation. Since this communication the solution has been used as a routine in many more cases before operation, and there has been quite definite diminution of post-operative pain. The amount used has been about 10 c.cm. in each case.

Spastic Anus.—Four cases were treated; all were relieved and allowed the passage of a large rectal dilator without pain. In one case in which, before injection, even digital examination was very difficult, it was possible to inject internal haemorrhoids without discomfort.

External Tags and Polypi.—Nine cases were treated, and the external tags and/or polypi were excised satisfactorily.

Pruritus Ani.—Seven cases of previously unrelieved pruritus were treated successfully. In two very severe cases there was anaesthesia or hypo-aesthesia six weeks after the injection, with relief from irritation. From 15 to 30 c.cm. of this solution was injected on an occasion.

Anal Pain.—One case of pain in the anal canal without an obvious cause was treated by an injection of 10 c.cm. around the anus. The pain was instantly and permanently relieved.

In a hundred cases reported there has been little or no pain on injection when this has been slowly and carefully carried out and no severe after-pain has been encountered. The length of the anaesthesia varied from seven days to six weeks. Relaxation lasted from five to sixteen days. The length of the anaesthesia and relaxation was proportional to the amount injected. There was no delay in healing of the wounds. In no case was there any severe reaction in the tissue and no general toxic effects occurred.

My thanks are due to H. J. R. Bussey, research assistant at St. Mark's, for preparation of the line drawings. I am indebted to Messrs. Allen and Hanburys for their help and co-operation in the production of this formula. It is supplied by them in 5 c.cm. and 10 c.cm. ampoules under the name of proctocaine.

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THE DIFFERENTIAL DIAGNOSIS AND TREATMENT OF SEVERE ANAEMIA*

BY

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Twice in comparatively recent years has anaemia been the subject of discussions at Annual Meetings of the British Medical Association. At Edinburgh in 1927 Professor Gulland opened a discussion on "The Pathology and Treatment of Pernicious Anaemia," and was followed, among others, by Drs. Minot and Murphy (of Boston) with a paper describing their success in the treatment of pernicious anaemia with "a diet rich in liver," of which they had first published an account in America in the previous year. The striking developments since then—the practical isolation of the pernicious anaemia factor in both liver and stomach extracts, and the remarkable results obtained in the treatment of a disease previously regarded as hopeless—furnish ample justification for the prominence which is being given to the subject this year in Melbourne. In 1931, at Eastbourne, a discussion on "The Varieties of Secondary Anaemia and their Treatment" was opened by Dr. L. J. Witts with a paper entitled "Chronic Microcytic Anaemia."

Classification of Anaemias

In undertaking the responsible task of opening this discussion on "severe" anaemia, I am confronted by the length and complexity of the modern classification of the anaemias, any one of which may be "severe" at some stage of its development. In order to avoid confusion and to concentrate attention on essentials I suggest that for the present purpose the following classification will serve:

1. Pernicious anaemia.
2. Idiopathic hypochromic anaemia.
3. Other deficiency anaemias—for example, scurvy, myxoedema.
4. Anaemias characterized by haemolysis—acholuric jaundice, anaemias due to chemical poisons, etc.
5. Anaemias secondary to: (*a*) malignant disease, especially that of the alimentary tract; (*b*) infections; (*c*) haemorrhage, acute and chronic.
6. Aplastic anaemia.
7. Splenic anaemia.

It will be agreed that it is to (5) alone that the word "secondary" is really applicable; nevertheless it has been the custom to apply it to all microcytic anaemias, and even to permit the use of the contradictory term "idiopathic secondary anaemia."

Differential Diagnosis: Three Questions

I propose to discuss the differential diagnosis by putting and partly answering the following questions:

1. Can a provisional diagnosis be reached by consideration of the history, symptoms, and ordinary clinical signs alone?
2. How much further can the diagnosis be carried by the use of such simple haematological methods as are within the scope of general practice?
3. To what extent is the further information that can be obtained by investigations at the hands of an expert clinical pathologist necessary not only in determining the exact diagnosis but also in guiding treatment?

*Read in opening a discussion in the Section of Medicine at the Annual Meeting of the British Medical Association, Melbourne, 1935.

Question 1

A careful review of the ordinary clinical data can, in many cases, carry the differential diagnosis quite a long way; in some of these a conclusion can be reached such as would justify the adoption of a specific line of treatment, especially when a confirmatory report by a haemotologist is not easily available. The description, which follows, of certain clinical features of some of the anaemias is intended to illustrate this point; that it is very incomplete is admitted.

Although the onset of pernicious anaemia is so insidious that the patient has difficulty in fixing a date to his first symptoms, inquiry will usually elicit information pointing to the probability that the disease has not been in progress more than twelve months at the outside prior to his first request for medical advice. The symptoms have been those common to all varieties of anaemia, together with digestive discomfort—vague dyspepsia, diarrhoea, constipation, or occasional vomiting—on the one hand, or nervous symptoms due to involvement of posterior and lateral tracts on the other. Yet, in spite of these symptoms and of the obvious presence of a severe degree of anaemia, the patient may have remained at work; in this respect there is a contrast with other forms of anaemia. There is never any real loss of weight—the combination of this feature with extreme pallor is proverbially diagnostic. Soreness of the tongue occurs in a number of cases, but is not pathognomonic as it was once thought to be, as it is found in other forms of anaemia. On the other hand, although actual glossitis is absent in many cases, it can be stated definitely that in all cases of pernicious anaemia "fur" is conspicuous by its absence. The spleen is often just palpable, but gross enlargement is suggestive of some other diagnosis. The presence of symptoms and signs of subacute combined sclerosis points strongly to the diagnosis of pernicious anaemia. The position may be put dogmatically: where anaemia is combined with a very long history, loss of weight (even if only moderate), gross splenomegaly, and/or furred tongue, the condition is not pernicious anaemia.

Idiopathic hypochromic anaemia (simple achlorhydric anaemia, chronic microcytic anaemia) occurs almost exclusively in women; its age distribution differs little from that of pernicious anaemia. The history is usually one of many years of vague ill-health, without the progressive deterioration which is, albeit with temporary intermission, characteristic of pernicious anaemia. For a description of the clinical features I quote Piney's "free" translation of Kaznelson and Weiner:

> Medical advice is sought for various reasons; often symptoms due to anaemia are particularly noticeable, such as palpitation, pallor, fatigue, fainting attacks, and pains in the bones. Diarrhoea and loss of appetite may be due to the achlorhydria, even when anaemia is only of moderate severity. No changes other than those dependent on the anaemia are found in the internal organs. Lingual changes of the nature of Hunterian glossitis are common. Nervous symptoms, such as paraesthesiae, occur; and one of the most striking signs is an alteration in the nails of the hands and feet. These are hollowed (koilonychia or spoon nails); in addition, the nails are tender and brittle.

Some cases show the combination of anaemia, glossitis, and dysphagia often known as the Plummer-Vinson syndrome. Other cases exhibit mild mental abnormalities suggestive of neurasthenia.

The diagnosis of either of these forms of primary anaemia from anaemias secondary, on the one hand to occult chronic blood loss, and on the other to cancer of the alimentary tract, may be practically impossible on

simple clinical examination, but there should be little difficulty in selecting the cases for which *x*-raying of the alimentary tract or full haematological investigation is necessary.

Aplastic anaemia occurs rather more frequently in women than in men ; its age incidence is younger than that of the above. The onset is insidious but fairly rapid ; the first complaints are those usually associated with any anaemia ; the patient is extremely pale and the sclerotics are bluish-white. As the condition develops, petechiae and other haemorrhagic phenomena occur, and stomatitis may become very intense. There is no splenomegaly.

The conditions (probably more than one) covered by the terms " splenic anaemia," " Banti's disease," etc., occur usually in young adults. The spleen enlarges progressively—palpable even in early cases, very large in later ones ; splenic enlargement may be discovered for the first time during a routine medical examination for life insurance or in connexion with ordinary simple illness. The disease is essentially chronic ; the anaemia is moderate in degree, except as the immediate sequel of haematemesis, which occurs sooner or later in most cases.

Question 2

Can the family practitioner advance the diagnosis a stage further without recourse to the expert clinical pathologist?—an important practical consideration, in view of the frequency of anaemia among all classes and the comparative scarcity of the expert at a distance from the larger centres. The student is taught the use of the haemocytometer and the haemoglobinometer in the wards of his hospital, but I fear that the majority fail to attain the degree of dexterity at which the use of these instruments ceases to be drudgery and the findings become reliable ; a few carry their experience into general practice, and undertake at least a preliminary haematological survey of their cases of anaemia. The one outstanding criterion for treatment being the recognition of a megalocytic* from a microcytic anaemia, I am surprised that so little use is made of the halometer (Eve's or other pattern), of the value and reasonable accuracy of which there can be no doubt. It is remarkable how little reference to its usefulness is made in recent books on haematology. I am glad to know that a later speaker in this discussion proposes to elaborate this point.

The value and simplicity of the chemical test for urobilin in the urine need only be mentioned to be appreciated.

Question 3

In spite of what might be inferred to the contrary from the foregoing there is no doubt that the answer to my third question must be in the affirmative. A haematological investigation by an expert is of the greatest value not only in diagnosis but also in the control of treatment, if the best possible progress is to be obtained. Constant practice enables him to achieve a degree of technical dexterity and diagnostic experience such as the practitioner has neither the time nor the opportunity to acquire. This applies to some extent to such comparatively simple procedures as blood counts and haemoglobin estimation, but more particularly to the following:

(*a*) Reticulocyte counts, of special value as an index of response to treatment in cases of pernicious anaemia, providing at once a guide to further dosage of liver preparations, confirmation (or otherwise) of the diagnosis, and data on which a prognosis may be based.

(*b*) Enumeration of blood platelets, necessary in the diagnosis of anaemias characterized by purpuric manifestations or by splenomegaly.

(*c*) Differential counts of the leucocytes, including the recognition of immature forms, such as are found in unusual types of leukaemia, to which the anaemia may be secondary.

(*d*) Estimation of the fragility of the red cells.

Specific Treatment

There is probably no group of conditions where a positive diagnosis points the way to the appropriate and specific treatment more directly than in the anaemias. It is unfortunate, to say the least, that during the years that have followed the discovery of liver therapy the doctor's mail has been flooded with advertising slips and pamphlets advocating the use of liver preparations, not only for pernicious anaemia, but also, in various combinations, for any type of anaemia. Without animadverting on the indiscriminate prescription of liver, which has been the vogue, I venture to suggest that it will now be generally agreed that liver preparations are effective in megalocytic anaemias alone, and that their use for other conditions is to be deprecated as unscientific and uneconomic. On the other hand, whilst iron is a specific for idiopathic hypochromic anaemia, and very valuable in the treatment of other microcytic anaemias, it must be remembered that in a few cases of pernicious anaemia iron is required in addition to liver if the optimum result is to be obtained. (The use of liver and stomach extracts is to be the subject of a separate contribution to the discussion.)

It is only in recent years that the value of iron in large doses has been fully realized. There is ample evidence that the increase of the dose of 30 grains of ferri and ammon. cit. to 120 or even 240 grains per day makes the difference between failure and success, and that the larger dose is well tolerated. There is no advantage in using organic preparations ; subcutaneous or intramuscular injections are valueless, because the dose is necessarily much too small. The addition of a small dose of copper (1/48 grain of the carbonate) to each dose of iron has been advocated, but has not so far met with general adoption.

As regards the prescription of hydrochloric acid to cases with achlorhydria or hypochlorhydria, its practical value seems to prove to be much less than, on theoretical grounds, might be expected. Severe cases of pernicious anaemia cannot tolerate it at all, and milder cases take it, however disguised, under protest. Its routine use, therefore, cannot be justified ; in a few cases it seems to aid digestion, especially if whole liver is being taken. In other anaemias with absent or deficient HCl evidence of its value is somewhat conflicting.

Of the outstanding advantage to be gained by transfusion of whole blood in suitable cases there is, of course, no doubt. In aplastic anaemia transfusion at regular intervals is essential to life, and in some cases permits a moderate degree of activity. Its use in the severe crises of pernicious anaemia has been much less frequent in recent years as the result of the availability of active liver extracts for intravenous administration. However carefully the bloods of donor and recipient have been " matched," there seems an excessive tendency to the production of severe reactions.

Points for Further Discussion

The following questions suggest, *inter alia*, some points for discussion:

What are the minimal criteria on which diagnosis can be based?

Once the diagnosis has been established, what are the disadvantages and risks of treatment without haematological control?

Why need iron be given in such large doses to secure the absorption of the small amount necessary?

Does copper or other metal assist improvement?

For what type of case is blood transfusion a real necessity?

* " Megalocytic," rather than " macrocytic," to avoid confusion with " microcytic," especially in speech.

HYPOGLYCAEMIA IN THE NEUROSES

BY

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Within the last twelve years the importance of hypoglycaemic states has come to be fully recognized. Harris,[1] estimating the fasting blood sugar level of 1,867 patients, found sixty-seven to be hypoglycaemic. His criterion was a figure below 80 mg. per 100 c.cm. He quotes Hoxie and Lisherness,[2] who in 307 routine blood sugar studies in nervous and mental cases found ninety-five with fasting blood sugars below 70 mg. Several workers, including Finney,[3] Cammidge,[4] Wauchope,[5] and Roth,[6] have remarked the striking resemblance which these states may bear to various neurotic illnesses.

There are many factors which may lead to a low blood sugar, the chief among these being excess of insulin (therapeutic injections, tumours of the islets of the pancreas, and the so-called functional hyperinsulinism), lack of opposing secretion (hypo-adrenalism, hypothyroidism, pituitary dysfunction), and abnormal excretion of sugar (renal diabetes, lactation). In no case is the diagnosis easy, and there is a peculiar liability to designate the symptoms as being neurotic. Such complaints as weakness, apprehension, trembling, sweating, vertigo, ataxia, irritability, confusion, and amnesia, which may occur without the onset of convulsions or loss of consciousness, may easily be diagnosed as being due to an anxiety neurosis, hysteria, or neurasthenia. Moreover, the actual occurrence of hypoglycaemia brings about a reflex stimulation of the adrenals, and thus, as Cannon[7] has shown, the symptoms result largely from sympathetic stimulation. Another point is that attacks of extreme weakness, accompanied as they usually are by a sense of impending doom, tend to produce a state of panic, and in such a patient a functional nervous disorder is easily developed.

The following three cases were all sent into the Jordanburn Nerve Hospital with the diagnosis of functional nervous disorder. In no case was hypoglycaemia suspected.

Case I

A married woman, aged 36, the mother of two healthy children, was sent into hospital with a history of vomiting after every meal for the last five or six years. She was also subject to hysterical attacks, during which she became extremely weak, somewhat incoherent, emotionally unstable, and would throw articles at her husband. At these times she felt a craving for sweets, and invariably satisfied this craving. There was marked loss of weight, the weight in hospital being 5 st. 8 lb. The pulse was usually about 50, the blood pressure 90/70, and the basal metabolic rate was found to be −25. The sella turcica was shown on *x*-ray examination of the skull to be perfectly normal, and the thyroid was not palpable. Amenorrhoea had been present for the past year. The skin was dry and wrinkled, but not pigmented. There was no abnormality in the distribution or amount of hair.

A glucose tolerance test, using 50 grams of glucose and testing half-hourly specimens, gave readings of 92, 85, 85, 75, and 79 mg. per 100 c.cm. That this was not due to delayed absorption was shown by *x*-ray examination; the stomach emptied readily, and was of good tone. Seven minims of adrenaline to the fasting patient gave a satisfactory rise of the blood sugar. The figures at half-hourly intervals were now 80, 122, 118, 104, and 82 mg. per 100 c.cm. This suggested that the liver glycogen was adequate. Five units of insulin were now given to the fasting patient, and the blood sugar figures at half-hourly intervals read 73, 49, 26, 35, and 37 mg. per 100 c.cm. During this period she sweated profusely, was excited, wept, threw a book across the room, and complained of excessive fatigue. She spontaneously remarked that this attack was exactly similar to those which she had experienced at home, and apologized for her hysterical behaviour. She expressed a desire for something sweet, and regained control of herself immediately after a glucose drink.

Case II

A married woman, aged 57, was admitted to hospital with a diagnosis of diabetes and a history of attacks of strange behaviour, during which she became restless, confused, and extremely talkative. These attacks were not considered to have any connexion with her diabetes, since, on one occasion, her blood during an attack was found to have a blood sugar which was within normal limits. The attacks were thought to be hysterical.

Thirty years ago her doctor discovered, on examining her for some minor complaint, that there was sugar in the urine. He considered her to be diabetic, and put her on a diet, which she adhered to for four years but gave up. She had no further trouble until the onset of the present illness. It was not known whether in the meantime she continued to pass sugar in her urine. The present illness started two years ago, when she complained of fatigue, loss of weight, and irritability. She was not diagnosed as a diabetic until February, 1934, when she was put on a low carbohydrate diet.

She was admitted to hospital in February, 1935, by which time she was receiving a 2,300 calorie diet and 60 units of insulin per day. On admission she was passing sugar in her urine, but there was no acetone. Three days after admission she became restless, confused, picked at the bedclothes and pulled them about, tore her nightdress, and was extremely talkative. This attack came on just before lunch. She refused her food, and was given 20 grams of glucose with 10 units of insulin. She remained confused for four hours, but was better immediately after tea. She had a complete amnesia for this episode. A few days later she became confused, and rapidly passed into coma. Respirations were shallow and the pulse 110 per minute. The skin was bathed in perspiration, the face pallid, the pupils slightly dilated, and the intraocular tension distinctly lower than normal. The Babinski plantar response was indeterminate. A catheter specimen of her urine showed neither sugar nor acetone. (This was the only occasion while in hospital that her urine was found to be sugar-free.) She recovered consciousness fifteen minutes after an injection of 5 minims of adrenaline. On two other occasions when in coma the urine showed sugar but no acetone.

A glucose tolerance test, blood being removed at half-hourly intervals, gave 75, 126, 200, 240, and 224 mg. per 100 c.cm. During this period the urine sugar rose at one and a half hours to 5.2 grams per cent. Urines collected at two-hourly intervals over the twenty-four hours showed that the patient was never sugar-free, and on five occasions her fasting blood sugar level varied between 76 and 65 mg. per 100 c.cm. On all these occasions the urine demonstrated an appreciable amount of sugar. It was quite evident that, in spite of the diabetic nature of the glucose tolerance curve, the patient had also an exceptionally low renal threshold, and that even when in hypoglycaemic coma her urine still contained sugar.

Case III

A married man, aged 31, was admitted to hospital suffering from attacks of weakness, accompanied by ataxia, trembling, and a state of panic. He was considered to be a case of anxiety neurosis.

His present illness started three years ago, when he experienced faintness on leaving a cinema with his wife. These attacks of faintness have occurred with increasing frequency, and during the past few months he has been afraid to go out at all unless accompanied by his wife. Frequently, before an an attack, he would be irritable and notice a tendency to bump into people when walking. He likened this to a mild state of drunkenness. He would feel weak, sweat, experience nausea and drowsiness, and feel afraid. He was sometimes too weak to walk home, and had to obtain a conveyance. He never lost consciousness. Usually, however, the attacks passed off on resting. He had noticed that they never came on after meals, and most commonly occurred after exertion. If feeling unwell before a meal he would immediately be relieved by taking food.

On physical examination there was no evidence of organic disease. *X*-ray examination showed the sella turcica to be normal. There was no evidence of endocrinopathy. A glucose tolerance test, the blood being removed at half-hourly intervals,

gave an inverted curve. The figures were 87, 75, 73, 73, and 64 mg. per 100 c.cm. Five units of insulin given to the fasting patient resulted in the following figures at half-hourly intervals: 71, 53, 51, 56, and 62 mg. per 100 c.cm. A glucose tolerance test repeated on two subsequent occasions again gave inverted curves, but on removing blood every five minutes for half an hour an early peak reaching 123 mg. per 100 c.cm. was obtained. A rapid fall to below the fasting level then occurred within the thirty minutes.

The glycogen reserves in the liver appeared to be satisfactory, as 7 minims of adrenaline to the fasting patient gave the following curve, blood being removed at half-hourly intervals: 76, 102, 94, 92, and 85 mg. per 100 c.cm. On one occasion, before lunch, the blood sugar was found to be 42 mg. per 100 c.cm. The patient felt weak and experienced hunger pains, but there were no definite symptoms. On several other occasions when the blood was tested the level varied from 57 to 97 mg. per 100 c.cm.

Discussion

The general appearance, emaciation, low basal metabolic rate, amenorrhoea, low blood pressure, slow pulse, abnormal carbohydrate metabolism, and increased sensitivity to insulin in the first case justified the diagnosis of Simmond's disease with a resulting hypofunction of the adrenals, thyroid, and gonads. The hypoglycaemic tendency follows naturally from a relative overaction of insulin due to a lack of antagonism from the adrenals, thyroid, and pituitary. The hysterical attacks were shown to be due to a state of hypoglycaemia, and a typical attack was produced when the blood sugar was lowered by giving insulin.

In the second case the patient was predisposed to hypoglycaemia because of the abnormal excretion of sugar resulting from the low renal threshold. It is probable that the diabetes treated thirty years ago was in fact a renal diabetes, and that only within the last year or two had a tendency to hyperglycaemia been added. There can be no doubt as to the presence now in this patient of a condition of diabetes mellitus, but any use of insulin must be controlled by the sugar level of the blood and not of the urine. A diabetic whose blood sugar has for some time been at a high level may show hypoglycaemic symptoms when this level is reduced to what would normally be an ordinary figure. This, together with the continued presence of sugar in the urine, led to the attacks being considered functional rather than hypoglycaemic. Probably two factors contributed to the state of hypoglycaemia in this case—the excessive loss of sugar resulting from the low renal threshold, and also the excessive use of insulin.

The third case is more difficult to understand, as no apparent cause can be found to explain the tendency to hypoglycaemia, and physically the patient appeared to be in good condition. Gammon and Tenery[8] describe a state of alimentary hypoglycaemia in which the fall in blood sugar, after the ingestion of food, has been sufficiently marked to cause slight symptoms of hypoglycaemia. In this case there appears to be an excessive insulin response to the ingestion of glucose, and in the absence of endocrine, hepatic, or renal abnormality one must consider the possibility of a simple hyperplasia of the islets of Langerhans. It is highly probable that several attacks, originally due to hypoglycaemia, especially if they occur outside, will predispose to future attacks of anxiety. The patient came to dread going outside alone, fearing the occurrence of his extreme weakness. As already remarked, the initial hypoglycaemic symptoms are largely sympathetic in nature, and the distinction between such a condition and an anxiety state is very difficult to make.

In the second case the patient was on a strict diabetic diet, while in the first and third the patients, who were under observation for a prolonged period, were on the ordinary hospital diet.

The blood sugars were measured by the Hagedorn-Jensen method.

Summary

Three cases of hypoglycaemia are presented, and the aetiology is distinct in each case. The difficulty of distinguishing between such cases and functional nervous disorders which they may closely resemble is discussed.

I wish to thank Professor D. K. Henderson, medical superintendent, Royal Edinburgh Hospital for Mental and Nervous Disorders, for permission to publish these cases, and also Dr. Henry Tod, biochemist to the Royal Edinburgh Hospital for Mental and Nervous Disorders, for the help he has given me in investigating their biochemistry.

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THE INCIDENCE OF ERYSIPELAS

BY

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In the literature of erysipelas there are many varied statements concerning the aetiology. While agreeing that the causal organism is a streptococcus, writers on the subject differ widely in their other views. Whether it is a specific organism or merely a variant of the streptococcus of scarlet or puerperal fever remains undecided.

The factors increasing susceptibility to infection are very vaguely stated. Beyond the necessity for a lesion of the epithelium most writers refuse to commit themselves, and take refuge in various possibilities such as alcoholism, poverty, overcrowding, and unhealthy conditions of life. That age plays an important part all are agreed, but very often wide limits are given. That sex plays an equally important part is also agreed, but apparently sex incidence varies from place to place. The season of maximum incidence is another moot point. Lord Horder[1] favours the spring, but in Ker's textbook *Infectious Diseases* the autumn is definitely stated. Similarly with other factors.

The subject, therefore, is well worthy of further investigation, and this article, which deals with the 686 cases of erysipelas notified in the landward area of Stirlingshire between July 1st, 1919, and June 30th, 1934, inclusive, is written in the belief that it is only by the pooling of many such local researches that a true knowledge of the disease may be gained.

Annual Incidence

In view of the close relation with the streptococcus of scarlet fever, it might be expected that the annual variation of erysipelas would show some relation with that of scarlet fever. Table I gives the number of cases of erysipelas and of scarlet fever in the yearly periods from July to the following June.

The only possible connexion which might be deduced is that there is an increased incidence of erysipelas in the year following a scarlet fever epidemic—an occurrence that might be expected theoretically as the result of the increased number of virulent streptococcal carriers present in the community during this period. The figures show no periodic increase and decrease in the incidence of erysipelas such as is found with scarlet fever. That the disease is practically stationary as regards total incidence is shown by the fact that in the three quinquennial periods the total number of cases is respectively 233, 229, and 224.

TABLE I

Year	1919-20	1920-1	1921-2	1922-3	1923-4	1924-5	1925-6	1926-7	1927-8	1928-9	1929-30	1930-1	1931-2	1932-3	1933-4	Totals
Erysipelas	42	44	55	46	43	44	44	50	38	53	42	40	34	58	50	686
Scarlet fever ...	354	561	180	149	207	381	449	429	217	260	258	190	419	479	1,020	5,553

Seasonal Incidence

Seasonal incidence of erysipelas is given in Table II, where the maximum incidence is shown to be in October, November, December, and January. This is especially so in the case of males, among whom there is also a markedly increased incidence in April.

TABLE II

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Totals
Male	13	13	16	19	34	38	28	20	20	31	21	16	279
Female ...	19	31	35	42	41	48	39	36	37	30	33	16	407
Total ..	32	44	51	71	75	86	67	56	57	61	54	32	686

This maximum in the latter part of the year agrees with the findings of Rundle.[2] Several American workers, such as Erdman,[3] the Seegals,[4] and Boston and Blackburn,[5] have found the maximum incidence to occur in the first four months of the year, and it has been pointed out that the same contrast has been found in the incidence of rheumatic fever in Britain and the United States of America. The autumnal increase occurs with all ages.

Age Incidence

This is shown in Table III. The maximum incidence for both males and females occurs in the decennium 45 to 54, but there is also a slight increase, especially for males, in the period 30 to 34 years, and in the first year of life. Rundle gives the age of maximum occurrence as between 40 and 50 years. Boston and Blackburn, on the other hand, dealing with facial erysipelas, found the maximum incidence in the third decade.

TABLE III

Age	Under 1 month	2-11 months	1-4 yrs. 11 mos.	5-9 yrs. 11 mos.	10-14 yrs. 11 mos.	15-19 yrs. 11 mos.	20-24 yrs. 11 mos.	25-29 yrs. 11 mos.	30-34 yrs. 11 mos.	35-39 yrs. 11 mos.	40-44 yrs. 11 mos.	45-49 yrs. 11 mos.	50-54 yrs. 11 mos.	55-59 yrs. 11 mos.	60-64 yrs. 11 mos.	65-69 yrs. 11 mos.	70-74 yrs. 11 mos.	Others	Totals
Male ...	3	6	6	6	9	11	8	17	28	18	23	32	35	24	21	18	8	6	279
Female ...	1	6	7	8	15	27	23	30	34	31	33	52	50	30	18	16	17	9	407
Total ...	4	12	13	14	24	38	31	47	62	49	56	84	85	54	39	34	25	15	686

Sex Incidence

In the 686 cases, 407, or 59.3 per cent., are females. With 1,643 cases Rundle found 54.5 per cent. to be females, but he states that this apparent preponderance takes no account of erysipelas of the newborn, and is largely eradicated when the incidence is expressed as a rate on the population. While in the present investigation there is certainly an increased proportion of males under 1 year affected, the number of these early cases is not sufficient seriously to affect the sex relationship on the whole, and, when the proportions are expressed in terms of the population, the primary result is fortified because the population of the county of Stirling shows an excess of males over females. Again, in contrast, in America only 43 per cent. of cases were found to be among females.

Variation of Incidence with Size of House and Overcrowding

It has been frequently said that erysipelas is a poverty disease and that the majority of cases come from the lowest social class. Russell,[6] referring to London and Glasgow, says "overcrowding and all that it connotes is closely correlated with the amount of erysipelas." In this inquiry, size of house and degree of overcrowding were noted. Table IV gives the absolute and percentage numbers of cases, together with the percentage of the general population living in each type of house.

TABLE IV

	One Apartment		Two Apartments		Three Apartments		Four Apartments		Over four Apartments	
	No.	%	No.	%	No.	%	No.	%	No.	%
Cases * ...	47	7.0	312	46.4	181	26.9	52	7.7	81	12.0
General population		6.1		44.4		22.8		10.0		16.7

* 13 cases occurred in hospitals or institutions.

While there is a slight excess of cases from the houses with the smaller number of apartments, the greatest excess is in the three-apartment dwelling. Thus poverty would not appear to be a vital factor, as until the recent subsidized rehousing of slum dwellers the number of apartments in the house has been a good indication of the inhabitants' social or financial level.

In Table V is shown the number of persons per apartment (children under 14 years of age being reckoned as half units) in the case of the households in which the infection occurred, and of the general population.

TABLE V

	One Apartment	Two Apartments	Three Apartments	Four Apartments	Over four Apartments
Cases	2.8	2.2	1.6	1.3	1.0
General population	3.3	2.3	1.6	1.2	—

It is at once evident that the cases did not arise in the houses in which overcrowding was most severe, and that this cannot explain the greater proportional incidence in the smaller houses.

Summary

1. Present knowledge concerning the aetiology of erysipelas is very vague.

2. In this investigation it would appear that: (*a*) Erysipelas shows no epidemiological features closely allied to scarlet fever. (*b*) Maximum seasonal incidence occurs in the months of October to January, inclusive. (*c*) The majority of cases occur in persons between the ages of 45 and 54 years, but there is also an increased incidence among children in their first year of life. (*d*) In the first year of life males are more susceptible than females; thereafter females show a definite preponderance, almost 60 per cent. of all cases being of this sex. (*e*) Poverty, as judged by size of house occupied, plays very little, if any, part. (*f*) Overcrowding is not a cause of increased incidence.

3. It is only by pooling many investigations such as the foregoing that further knowledge of the disease may be gained.

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BILIARY PERITONITIS

BY

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A recent case of biliary peritonitis recalled to my mind two others, and suggested that the subject is one which is not commonly discussed in the textbooks and is almost ignored in current literature. My three cases are recorded in brief below.

Case Records

Mrs. A., aged 65, was admitted with a history of abdominal pain and uniform tenderness and distension, which made one suspect an obstruction. A slight icterus negatived this diagnosis, and as her condition rapidly deteriorated she was not subjected to operation. She had had a cholecystectomy a year previously. At post-mortem examination the abdomen was found to be full of bile, and there were several stones in the common bile duct, though no perforation was discovered; it is not unlikely that it may have eluded the pathologist.

Mrs. C. was admitted with symptoms and signs indicating acute spreading cholecystitis. Laparotomy confirmed the diagnosis, but also revealed massive adhesions of old-standing disease and a leakage of bile. No perforation was seen, but circumstances did not favour investigation. Multiple calculi were removed and cholecystostomy performed. The gall-bladder was removed at a later date.

Mr. S., aged 70, appeared clinically to be a mild case of perforation. Actually he had a tense gall-bladder with extravasation. A point of leakage was not seen. Several small stones were present. Cholecystostomy was done. The fistula persisted, and one anticipated the necessity of further interference, but unfortunately a coronary thrombosis carried the patient off.

I have seen one other case at operation in which the bile was oozing from a pin-point perforation in the fundus. The haemorrhagic nature of the exudate was quite striking.

Aetiology

The condition of biliary peritonitis is not common, and occurs only about once in every hundred gall-bladder cases. Extravasation may be from the gall-bladder itself or from any of the ducts, as a result either of disease or of trauma. It must be remembered that the duodenal contents can be very similar in appearance. The extent of the lesion or lesions, for they can be multiple, varies from the microscopic to widespread sloughing cholecystitis, and is not necessarily located on the peritoneal aspect of the bile passages, for an instance of a large retroperitoneal escape has been recorded. Localization is only likely in the event of long-standing inflammatory trouble, or after rupture due to injury. The exact mechanism of the process is uncertain, and probably varies, but the presence of stones is an important factor, as they are found in over 70 per cent. of cases.

The actual hole may be the result of pressure necrosis at the site of impaction, and this applies even when local tension is not marked. Small stones are found not infrequently lying in the depressions between the trabeculae of a "chronic" gall-bladder, producing minute ulcers. In a later stage a large calculus is often seen to be in contact with an area of much grosser ulceration. In the cases where stones are not present an infective ulceration can lead to destruction of all coats, and this is surprisingly common in typhoid fever. A mechanical bursting is possible with a cystic duct blockage, either by stone or by oedema. The gall-bladder in health is generally reputed to empty easily. Practical experiment or a consideration of the usual calibre of its duct makes it obvious that some little patience must always be expended on the emptying of the viscus, and that no great degree of inflammation is required to block it. However, if this channel is effectively occluded it is unlikely that any big extravasation can ensue. The Germans postulate a condition of over-viscid bile to explain the syndrome of very definite colic without the presence of calculi. Whether this could ever raise intrabiliary tension sufficiently to cause leakage is extremely doubtful. Of considerable practical importance is the site of the perforation, and, fortunately for the surgeon, this is, in 90 per cent. of cases, in the gall-bladder itself, usually in the fundus, but sometimes in the pouch of Hartmann and sometimes midway between. In 3.3 per cent. it is in the cystic duct, in 4.4 per cent. in the common bile duct, and in only 1.1 per cent. in the hepatic ducts.

A very striking feature of many of these cases is that the gall-bladder is healthy, and no gross ulceration can be found. Rouillard and Schwob had a case of a woman of 83, not operated on, who on post-mortem examination was found to have a big extravasation with no signs of inflammation in the gall-bladder and no perforation, although a few stones were present. The organ was not under tension, but the cystic duct was narrow. To explain this case they quote Leriche's almost lyrical description of his findings in a similar one: "La vésicule distendue laisse suinter une véritable rosée qui tombe dans l'abdomen et se renouvelle quand on l'essuie avec une compresse." The gall-bladder here was tense. Their observation was made after death. Yasse and Cornelis describe a similar happening. In this case a lax and healthy gall-bladder was seen to have on its lower surface a dark stain about one inch long, from which a drop of bile was suspended. There were no stones, and subsequent examination after cholecystectomy revealed no thinning or solution of continuity in the discoloured area. These instances leave no doubt that transudation of bile is not a pathological myth. The Continental literature provides numerous other examples.

One author describes a case which, in addition to extravasation, showed signs of acute pancreatitis. He raises the question of the relation between the two conditions. It is an undoubted fact that fat necrosis is an occasional concomitant of bile leakage, and this independently of pancreatic disease. The explanation seems to be that the bile salts increase the permeability of the pancreas and allow its enzymes to escape and act on fat, and even on the liver. Microscopy reveals no disease of the gland when this happens. Rewbridge conducted experiments on these lines, and found that bile or the salts thereof injected into an animal's peritoneal cavity produced fat necrosis, especially in the neighbourhood of the pancreas, but failed to do so if that gland had been previously removed. It has further been demonstrated that bile used in this way, even if sterile, will kill an animal, but experience teaches that it is relatively innocuous in man. The fatal type of peritonitis produced by morbid process is bacterial rather than chemical.

Symptomatology, Treatment, and Prognosis

Biliary extravasation is a disorder of later life, the average age of the patient being 50. Women are the more frequent subjects, and second attacks are not unknown. The signs and symptoms are such as might be expected. The patient usually commences with epigastric pain of sudden onset, but it may be preceded by the pain of colic or cholecystitis. The state of affairs resembles that found in rupture of a peptic ulcer, but is not so acute. Tenderness and muscular tension are widespread, especially on the right side of the abdomen, but there is usually absence of board-like rigidity, and there is a tendency to distension. Temperature and pulse are both raised, and there may be shifting dullness. The quantity of fluid is often enormous, as the gall-bladder has lost

its concentrating function, but, on the other hand, supply may be obstructed at its duct. A well-localized case can simulate a pure cholecystitis or even colic, but any spread of the physical signs should bring these diagnoses under suspicion. A little later in the history an appendicitis may be considered, through the tracking of exudate into the right iliac fossa. Still later it is necessary to distinguish from general peritonitis and intestinal obstruction. Jaundice is not as common as might be expected, and is late in onset and mild in character.

Operation is the only treatment for this condition, and it cannot be advised too early. Some traumatic cases are temporarily relieved by tapping, but the measure is not curative. Suture of the perforation is, in view of the nature of the disease, obviously hopeless, and cholecystectomy is the most satisfactory course to adopt. Local and suprapubic drainage is employed. If any of the ducts has been perforated the procedure can be suitably modified and a drain placed in its lumen. Peritoneal toilet is the only other requisite, and attention should be directed to the state of the lesser sac. On some occasions, with very ill patients or with considerably damaged gall-bladders, it may be impossible to remove the organ, and it then has to be left for a later date, the surgeon being content with cholecystostomy and removal of stones.

The prognosis depends on the degree of infectivity of the bile and the promptness of intervention. It would appear that bile exalts the virulence of the infection and diminishes the bactericidal properties of the exudate which it produces. In the traumatic group, with sterile bile, it seems possible to delay operation for as long as six weeks or more without a fatal result. The recovery rate is about 80 per cent., whereas in the pathological perforation group all die without operation, and only 50 per cent. recover with it. Even here, however, life is sustained sometimes for as long as twelve days without laparotomy, and some of the patients are still fit enough to go on the table. This is in marked contrast to the rapid deterioration after stomach or duodenal contents are liberated in the peritoneal cavity.

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During the twelve months ended March 31st, 1935, the National Institute for the Deaf obtained new headquarters in Gower Street at a cost of over £12,000, of which about £7,500 remains to be found. A fine hall has been erected at the rear of the property to the memory of the founder of the Institute, Mr. Leo Bonn. In the annual report for 1934–5 the claim is renewed for the appointment by the Government of an advisory committee on the deaf and the passing of a Deaf Persons Act in view of the inadequate benefit derived from the Ministry of Health's Circular No. 1337. Six regional associations for the deaf cover the whole of England and Scotland. All are affiliated to the Institute, and have adopted a scheme ensuring closer mutual co-operation. These associations are of the greatest importance to the future development of work for the welfare of the deaf, since they bring together the public authorities upon whom that work must to a large extent ultimately depend and the voluntary societies actually engaged in it. The report includes accounts of the many and varied activities carried on by the National Institute, and the protest against the "ramp in aids to hearing" is repeated. The organization will attain its silver jubilee next June.

Clinical Memoranda

Melanoma of the Choroid with Secondary Deposits in the Liver, etc.

In the *British Medical Journal* of October 5th, 1935 (p. 624), Dr. Halls Dally describes a case of melanoma of the choroid with late secondary deposits in the liver. Full details of laboratory and post-mortem examinations are given. No mention, however, is made of the urine having been examined for the presence of melanin or its immediate precursors, an examination which was of value in the case recorded below, as well as in others in the experience of the writer.

Case Report

On September 11th, 1935, I was asked by her medical attendant to see in consultation with him a 73-year-old lady in a town on the west coast of Cumberland. For seven or eight years she had had "bilious attacks," with pain in the right upper quadrant of the abdomen and occasional evanescent jaundice. These were attributed to biliary colic, and traces of bile were found in the urine in April, 1932, and in January, 1934. In June, 1935, there was tenderness in the right upper abdomen, and in August marked deterioration was noted in her general condition. On September 10th enlargement of the liver was definitely present, and there were signs of a right pleural effusion.

On June 24th, 1932, she had developed an acute glaucoma of the right eye, was seen by an ophthalmologist without delay, and had the eye removed. The pathological report on the eye was: "Melanoma of the choroid involving the ciliary body and extending through into the anterior chamber." There had been no suspicion of any local recurrence.

Seen by me on September 11th, she was of a good colour, with no jaundice, but showed signs of recent weight loss, and had atonic muscles. The right eye was artificial, the orbit apparently healthy. The tongue was coated, the teeth false, the throat healthy, and no enlarged glands were felt in the neck, axillae, or groins. The chest had an old bony deformity, and respiratory movement was restricted on the right side, in which was an effusion which extended up to the sixth rib behind. The heart was not appreciably displaced or diseased; the blood pressure was 156/84 mm. Hg. A bulge was present in the right upper abdomen. The abdominal wall moved poorly with respiration. In the midclavicular line the liver was felt to extend to a distance of five inches below the right costal margin. It was hard, irregularly nodular, and tender. The left lobe was similarly involved. The spleen was not enlarged. A finger in the rectum detected no disease of the bowel nor any secondary deposits of malignant disease in the pouch of Douglas.

The urine was not abnormally dark in colour, nor did its colour appreciably change on standing, but it contained a trace of albumin. The presence of melanin compounds was detected by the ferric chloride test, the ferric-chloride-in-hydrochloric-acid test, and by the Thormählen reaction.

The patient died on September 27th, 1935.

Discussion

The rapidly increasing hepatic enlargement of irregular nodular type suggested secondary malignant disease, as did the pleural effusion. A primary focus had been removed three years before, and, although there had been no local recurrence, the finding of melanin bodies in the urine placed the diagnosis beyond reasonable doubt. There was thus no need to worry the patient by any more complicated investigations.

Summary

There is described a case of melanoma of the choroid, removed by operation, and followed three years later by metastases in the liver and chest without demonstrable local recurrence.

The diagnosis was simply confirmed by the finding of melanin bodies in the urine.

Note.—The Thormählen reaction is described in *Chemical Methods in Clinical Medicine*, by G. A. Harrison (London, 1930, p. 208). A fresh solution of sodium nitroprusside is prepared by shaking a few crystals in 10 c.cm. of water, and three or four drops of this solution are added to 5 c.cm. of urine, to which mixture are then added ten to twelve drops of 40 per cent. sodium hydroxide solution, until it is strongly alkaline. It is shaken, and then a few drops of 33 per cent. acetic acid are added, without heating, until the mixture is acid. If melanogen is present the mixture will become blue or blue-black, according to the concentration of melanin. The blue colour is due to the formation of Prussian blue, and if the urine is deeply pigmented the colour may be green, not blue.

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An Unusual Dose of Avertin

The following case seems worthy of note as possibly constituting a record individual dose of avertin.

A married woman, aged 45, had a four-years history of repeated attacks of severe biliary colic, which had, in the summer of this year, become almost intolerable. She was admitted into the Victoria Memorial Jewish Hospital, Manchester, under the care of Mr. F. H. Scotson on September 3rd, 1935. The remarkable features of the case were the size and weight of the patient, who had for this reason, on several previous occasions, been refused operation in other hospitals. She was first placed on the ordinary 20-st. scales, but literally broke this machine with ease. Scales weighing up to a maximum of 24 st. were then obtained, but even these proved inadequate, although before admission to hospital she had been strictly dieted for a period of three weeks. For the purpose of calculating the requisite dose of avertin, her weight was finally estimated at between 24½ st. and 25 st.

Operation was performed by Mr. Scotson on September 13th. The choice of anaesthetic presented a difficult problem. Spinal anaesthesia obviously offered the best prospect from the point of view of the surgeon, but even in the unlikely event of a successful lumbar puncture the difficulties of effectively manipulating the subsequent position of the patient barred this method. On the other hand, the chances of the occurrence of post-operative respiratory complications of inhalation anaesthesia in such a subject seemed great. It was finally decided to give her avertin in order to minimize the amount of inhalation anaesthetic subsequently required. The patient was given 0.09 gram of avertin per kilogram of body weight. She actually received 14 c.cm. of concentrated avertin fluid, diluted so that the total quantity of solution for the rectal injection was 558 c.cm.

After the onset of unconsciousness, 1/60 grain of atropine sulphate was administered, and the patient was then transferred to the operating theatre. Ether was administered until anaesthesia was sufficiently deep to permit the introduction of an intratracheal catheter. Deep ether anaesthesia was maintained almost throughout, in order to minimize as far as possible the natural difficulties of performing a major operation on so stout a subject. The abdomen was explored through a right paramedian incision, and the gall-bladder was found to contain a large solitary stone. An expeditious cholecystectomy was performed, and the abdominal wall then sutured in layers. A roller-towel was used as a bandage, and as soon as the abdomen had (so far as possible) been secured by this means, the lungs were thoroughly ventilated by the administration of carbon dioxide before the patient returned to bed. Subsequent progress was uneventful. The pre-operative fears of "chest" complications proved quite unfounded, and the patient made an uninterrupted and complete recovery, and was discharged from hospital on October 4th, three weeks after operation.

My thanks are due to Mr F. H. Scotson for so kindly supplying me with all the surgical details of the case.

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Reviews

THE DOCTOR'S PLACE IN THE COMMUNITY

In his preface Dr. J. P. WARBASSE says that *The Doctor and the Public*[1] is an inquiry into the place of the physician in society and the possibilities of the medical method in solving social problems. It is written partly to inform the public of the scope and meaning of medicine, and to demonstrate the services that may be obtained from doctors by improving their culture and experience. The book thus appeals both to the lay and to the medical reader, each of whom will be interested and given food for thought. Dr. Warbasse believes that the solution of the medical problem is to be found by expanding the functions of the medical profession and by reducing competition without loss of income. He proposes to do this by a whole-time service, the reduction in numbers being made by means of a non-political and voluntary system of co-operation between doctor and patient. Great Britain has its own medical problems, but they do not seem to be identical with those facing the United States. Here there is a closer knitting of the profession and a higher level of education. The General Medical Council exercises a wholesome control, and organizations like the British Medical Association have a far-reaching influence for good. It has been far otherwise in the States, where, until lately, the standard of general and medical education was low, there was no central control, and much less *esprit de corps* than there is in this country. The application of Dr. Warbasse's suggestions may be serviceable to a certain degree, but they are not likely to be wholly effective. He thinks that the doctors would spend their leisure time in the laboratory, and takes no account of the mental defectives among the patients.

Dr. Warbasse wisely builds his edifice upon a solid basis. He traces the development of medicine from the earliest times, relying perhaps rather too much upon the little that is known of those who practised in India and China. He carries the story on through the classical and Arabian periods to the Middle Ages, and so to Pasteur, Lister, Virchow, and Welch. Quacks and faddists receive short shrift, and he prophesies that as the standard of education rises they will disappear. There is no doubt that until we reach Utopia the public will wish to be deceived. Dr. Warbasse estimates that in the United States at the present time there are 9,000 Christian Science healers, 7,700 osteopaths, and 16,000 chiropractors, to say nothing of naturpaths, sanipractors, neuropaths, vitopaths, and mental healers, who have not yet begun to infest Great Britain. He gives some alarming figures about mental disease in the United States when he says that "New York State has one recognized demented person to every hundred inhabitants. One person in ten who reaches adult life in New York State is admitted to an institution for mental diseases before he dies, and mental diseases are increasing in this country faster than hospitals for their cure are being built, although the importance of hospital treatment is well understood."

Dr. Warbasse makes his book palatable by introducing several good stories. He tells of the physician in good standing, a friend of his own, who ordered a patent medicine for the relief of flatulent dyspepsia. Analysis showed it to be a mineral acid and a vegetable alkali. As soon as the tablets were washed down with some water the ingredients united, gas was belched up in abundance, and the patient realized how much good was being done. He speaks sometimes in allegories, as when

[1] *The Doctor and the Public. A Study of the Sociology, Economics, Ethics, and Philosophy of Medicine, Based on Medical History.* By James Peter Warbasse, M.D. New York: Paul B. Hoeber, Inc. 1935. (Pp. 572; illustrated. 5 dollars.)

he tells of "a foreign visitor named *Spirochaeta pallida*, who, after being introduced to the liver, proceeded to multiply in his house, destroyed all his host's industries, and eventually ruined him." In speaking of Lettsom he should perhaps have given the epigram in its more terse and stinging form:

> When any sick to me apply
> I physic, bleed and sweats 'em.
> If after that they choose to die,
> What's that to me?
> I. Lettsom.

A few minor mistakes stand to be corrected. Bernard of Gordon was certainly not a Scotsman, nor was John Hunter ever in the Navy. The fracture described by Pott to his surgical class was not "Pott's fracture," nor did Herodotus spell his name Heroditus. The book is well illustrated; there is a short list of authorities and a sufficient index.

D'A. P.

TREATMENT OF POISONING

Lists of poisons and their antidotes have too often in the past been the only toxicological information supplied to medical students and practitioners, and a much more satisfactory presentation of the subject, based essentially upon fundamental principles, should make Dr. H. L. MARRIOTT's monograph—*The Treatment of Acute Poisoning*[2]—a popular manual. Acute poisoning demands instant action, and Dr. Marriott sets out to explain in the simplest terms what should be done and how to do it. He presents the indications for treatment in regard to all poisons considered as a whole, and rightly lays stress upon inhaled poisons (chiefly carbon monoxide from coal-gas poisoning) before dealing with the ingested group. The sixteen pages which comprise "indications" are full of excellent material well presented, and if properly assimilated the information there is all that is necessary for the practitioner well trained in practicalities. The remainder of the book deals with those essential methods of treatment, and there is much valuable material here for thought and action, especially Dr. Marriott's advocacy of adequate gastric lavage, the correct treatment of the asphyxial element, and the essential management of dehydration and dechloridation present in certain instances. This is a concise and valuable manual on a subject which has become unnecessarily complicated: it can be warmly recommended.

HEALTH WRIT LARGE

During the current century, which has witnessed the inception or effective development of the social services that now figure so conspicuously in the field of administration, there has hitherto been in this country a somewhat remarkable non-appearance of any comprehensive book dealing, on a scale befitting the subject, with modern public health as enlarged and transmuted by these new activities. Not indeed that there has been a complete shortage of such publications in the English language, for several experts in North America have written *in extenso*, and their works in the absence of the full-grown native product have attained here considerable vogue, as their merits fully warranted. But of British books issued during the period—a number of which from time to time we have commended in these pages—none has aspired to the major dimensions necessary to the full portrayal of the great extent and significance of English public health to-day. This gap has now been filled by the publication of a work[3] in two volumes by Dr. C. W. HUTT and Dr. H. H. THOMSON, with the aid of other well-known contributors. It is noted on an early page, with regret which will be shared by every reader, that Dr. Hutt himself did not live to see the work to which he had devoted so much thought and labour assume its final form.

After a brief historical survey and an introductory article on epidemiology, the individual infectious diseases are dealt with in the course of a spacious chapter, which occupies half of volume i. Next, under the heading electricity and radiology, an illuminating account is given of the medical uses of radiant energy, and stress is laid upon measures for the protection of the personnel at radium institutes. In the chapter on food it is advised that an initial high temperature should be maintained in roasting in order to seal the surface of the meat, though reference is made to the work of McCance and Shipp, which suggests that the seal is imaginary. Among the diseases connected with food, rickets is amply presented, together with such associated conditions as nyctalopia and osteomalacia. The apt diagrams portraying the path of invasion by the parasitic helminths convey much in little space. Under food poisoning an account is given of the staphylococcus infections in America. In the chapter on water, which is in general well done, the older form of Hawksley's formula is retained and the artesian bore of Grenelle, near Paris, is located in Artois. The article on swimming baths is full of useful practical points, and that on the purification of water includes an account of the catadyn silver and base exchange methods.

Turning now to volume ii, in the chapter on meteorology we have found no account of the polar front, which is the cradle of cyclones; acclimatization, on the other hand, is admirably expounded. In the chapter on drainage the one-pipe system is properly commended. The impressive chapter on heredity should exert a strong cautionary influence on readers who favour the introduction of drastic eugenic measures. "Mental deficiency," these authors say, "is not one thing but many, and it is most unlikely that normality and abnormality differ from one another by a single hereditary factor." The separate chapter on mental deficiency is clear and informative. We have found the section on naval hygiene of outstanding interest, and have acquired useful knowledge from that on aviation. The chapter on personal hygiene, too, could scarcely, we think, be bettered. It contains health precepts for people of every station under most conditions. It advises billiards for those who will not take outdoor exercise, and lays down that golf is not a game which persons of an irritable temperament should take up late in life! The closing chapter on vital statistics is a notable contribution. Other chapters to which space forbids more than a passing reference are those on hospitals, disinfection, housing, town-planning, ventilation, lighting, school hygiene, industrial medicine, maternity and child welfare, port, marine, military, and international hygiene, education in health, and public assistance.

Enough has been said to make it clear that the book fills the gap already referred to above with distinction and completeness. If we have any complaint it is that some of the contributors have been so concerned to cite the views of other authorities that they have in a number of instances failed to impress their own. We feel that, had they been more outspoken, it would have tended to focus the reader's interest more sharply on the questions

[2] *The Treatment of Acute Poisoning.* By H. L. Marriott, M.D., M.R.C.P. London: John Murray. 1935. (Pp. 45; 15 figures. 5s. net.)

[3] *Principles and Practice of Preventive Medicine.* Two volumes. Edited by C. W. Hutt, M.A., M.D., M.R.C.P., D.P.H., and H. Hyslop Thomson, M.D., D.P.H. London: Methuen and Co. Ltd. 1935. (Pp. 1,688; 215 figures. £3 13s. 6d. net.)

at issue and, even had he disagreed, would have helped him towards a settled opinion somewhere between the extremes, as the arbitrary origin of a series, though ultimately discarded, provides us with the *point d'appui* by which we reach the golden mean.

ILLUSTRATIVE ELECTROCARDIOGRAPHY

Electrocardiography, like anatomy, derives its clearest expression from the atlas form of presentation. Drs. BAINTON and BURSTEIN have appreciated this fact in their comprehensive work *Illustrative Electrocardiography*,[4] and they have drawn their examples of normal and abnormal electrocardiograms from a group of 7,500 records among hospital patients. An explicit description of the component parts and the variations of these within the limits of the normal is first given, and this serves to familiarize the reader with the method of exposition. Every opening in the book has reproductions of electrocardiograms on the right-hand side, with a full analysis of the tracings on the opposite page.

No major point in modern knowledge of electrocardiography has been omitted, and in the case of important matters, such as the electrical changes developing in the course of cardiac infarction, a detailed analysis at many stages is provided. The records have in all cases been taken on sensitized film or paper strip, and the white tracing on a black background will appear unfamiliar to the average medical eye in this country. The curves are consistently clear and well reproduced ; furthermore, they bring out clearly the points in analysis they are intended to demonstrate.

PERSONALITY AND PEDAGOGY

Of making many books, especially in America, there is no end. They tend to run in series, and how many of these there may now be dealing with matters of psychology and education in one way or another it would be difficult to compute. They tend to run also to a pattern. There is a dedication, a preface by the author, a foreword by an editor or friend, a large number of pages of text, an appendix of quotations or some similar references, making usually a volume well arranged and printed but heavy to handle. *The Foundations of Human Nature*,[5] by Dr. JOHN MORRIS DORSEY, assistant professor of psychiatry at the University of Michigan, and physician to the Psychopathic Hospital, Ann Arbour, is no exception to the rule. It has all the enumerated features and characteristics. It is in an educational series, and is addressed mainly to teachers and professors, though the author evidently intends it to help medical practitioners, social workers, and many other individuals, for he tells us: " I have tried to concoct a potent mixture for maintaining personal health. Because they represent the most enlivening ingredients I have added to the calmatives of peace and quiet the stimulus of stress and strain. In a word, I have striven to inspire as well as teach the student."

Undoubtedly a better understanding of all the elements which constitute a personality would be of great benefit to all these persons and classes of person. Undoubtedly, also, there may be found in Dr. Dorsey's book much that is of value for " the study of the person." The author pursues this study in logical order from its general biological foundation, through racial and familial developments, to individual constitutional patterns. He considers " orientation within personality," and " the personality in relation to the world." He passes on to " the pedagogical treatment of the personality " and to a statement of the human values to which education should be directed. Dr. Dorsey's editor says that " this book will not make light reading." It does not, either literally or metaphorically. It contains far too many pages. Its theme and its several parts are elaborated out of all due proportion. It contains much that must be platitudinous or commonplace to the readers who will be likely to peruse it. Its exclamatory style becomes a little tiresome. What the author has to say is really summed up in his final " conclusion." This contains an effective statement of his thesis, with some excellent and telling quotations. Perhaps some elaboration of such a statement or essay as is given in this last chapter was required for certain readers. If so, there is little doubt that it would have been more useful and readable if it had occupied less than half the number of pages contained in the present volume.

[4] *Illustrative Electrocardiography*. By Joseph H. Bainton, A.B., M.D., and Julius Burstein, A.B., M.D. New York and London: D. Appleton-Century Company Inc. 1935. (Pp. 258 ; 100 plates. 21s. net.)

[5] *The Foundations of Human Nature : The Study of the Person*. By John Morris Dorsey, M.S., M.D. London: Longmans, Green and Co. 1935. (Pp. 488. 12s. 6d. net.)

Notes on Books

The preparation of a fourth edition of the well-known *Companion to Manuals of Practical Anatomy*[6] has enabled Dr. E. B. JAMIESON to introduce the Birmingham revision of the Basel nomenclature in the text. A short glossary is inserted indicating the more radical differences between these two nomenclatures. Otherwise there is but little change in this edition as compared with its predecessors, for none was required other than those slight modifications of the descriptions of relationships and connexions of structures which are inevitable in anatomical handbooks from time to time. An immense amount of detailed knowledge is presented in necessarily telegraphic diction, which facilitates quick reference though it would hamper any attempt at continuous reading. As a " companion " to larger manuals this volume has achieved considerable popularity, which the new edition will enhance.

Apparently the Italian State compels the assistance of private practitioners to an extent unknown in this country, and any doctor may find himself summoned to perform a post-mortem examination or testify as an expert witness. Professor BALLOTTA'S little book[7] is meant for a guide to the unaccustomed as well as for a reminder to the expert. He deals chiefly with the various tests for blood and semen, the examination of hair and excreta, and the conduct of post-mortem examinations, and gives a detailed account, with a table, of how to tell the age of a foetus. The first chapter explains the form of report which a practitioner is obliged by law to render to the authorities if he suspects that a crime has been committed—a reminder of the enviable discretion still allowed to British doctors.

A new and revised edition has been published of the *Tropical Medical Manual*,[8] which was specially prepared originally for the use of Salvation Army officers on missionary service. In preparing the new edition Colonel PERCY E. TURNER, M.D., deals first with the principles and practice of the prevention of diseased states, and secondly with their treatment. Physical training is emphasized by the provision of an illustrated appendix of fifty exercises. Other useful features include notes on the care of European children in the Tropics, on the prevention and treatment of dyspepsia, and on various insect and other pests, simple surgical

[6] *A Companion to Manuals of Practical Anatomy*. By E. B. Jamieson, M.D. Fourth edition. London: H. Milford, Oxford University Press. 1935. (Pp. 661. 12s. 6d. net.)

[7] *Prassi Medico-Forense*. By Professor Dott. Francesco Ballotta. Bologna: N. Zanichelli. 1935. (Pp. 166 ; 21 figures, 5 plates. 15 lire.)

[8] London: S.A. International Headquarters, 101, Queen Victoria Street, E.C.4.

notes, a list of remedies, and a good index. The book is thoroughly practical, and the information has been carefully brought up to date in all respects, including simple psychological hints, which are so often overlooked in books of this kind. While it is specifically stated that these health instructions are not intended in any way to replace proper medical assistance, they should be of great value in training officers to keep themselves and others in health, and in enabling them to deal with emergencies when no such skilled help is at hand.

A booklet comprising the researches and discoveries in connexion with the medical side of old age has been issued under the editorial direction of JOSEF KLUGER, Gartenstrasse 135, Wünschelburg, Germany, from whom copies can be obtained. It includes special articles on skin changes, tissue structure and degeneration, the problem of grey hair with special reference to its aetiology, and longevity in animals. It represents an attempt to bring together in a small annual periodical a summary of the more important information which is obtained year by year. The price is stated as 3 reichsmarks.

A recent addition to the paediatric section of the practical medicine and surgery collection of monographs issued by the well-known Paris publishers Masson et Cie. is a modest study of the dietetic requirements of the premature and debilitated infant, by Drs. L. RIBADEAU-DUMAS and M. LATASTE. The details given in *Les Nourissons Débiles et Prématures, Etude Diététique* (16 fr.), are in accordance with the modern teaching on the subject, but it is not presented in such a way as to make it at all easy for the busy practitioner to find exactly what to do with the feeding of a very much underweight infant suddenly thrust under his care. The use of the metric system is a further disadvantage so far as English readers are concerned.

A cheap edition of Dr. J. WESLEY BREADY'S autobiography of Dr. Barnardo has now been published by George Allen and Unwin Ltd., at 2s. 6d. We understand that 12,000 copies have already been sold.

Preparations and Appliances

NEW ALPINE SUN LAMP

In their new Alpine sun lamp Hanovia Ltd. of Slough have embodied, in place of the old form of burner, consisting of a quartz arc tube with two electrodes for direct current or three for alternating, an electronic discharge arc tube with some new characteristics. With this new tube starting is effected, without any short-circuiting, by an electronic discharge from the activated metal cups which form the electrodes. The tube contains a trace of rare gas, which ionizes more readily than the mercury, which is also present in the form of a minute deposit on the walls. When sufficient potential is applied the gas sets up a glow discharge, and the self-heating electrodes rise quickly in temperature to the point where electronic emission begins. The discharge turns to an arc through the mercury, the whole of the mercury quickly being vaporized, and thus the tube reaches its stable operating point. It has only two electrodes, the complication of a third electrode for alternating current operation having been overcome. Although of more elaborate manufacture than the previous type of lamp, from the practitioner's point of view it is simpler in working, being free from the difficulties of starting and from operating troubles, working equally well at any angle, and taking the form of a simple straight tube well adapted for mounting on the optical axis of a reflector. The spectrum and output characteristics are stated to be the same with both the new and the old burners, as both are high-pressure mercury arcs in quartz tubes, but the new discharge arc tube is calibrated to give 10 per cent. greater total intensity and with a smaller current consumption. The new lamp embodies also an adapted form of rheostat control in its circuit, by which means the high output is maintained uniformly throughout the entire scheduled operating life of 1,000 hours.

INTERNAL RECTUS EXERCISER

Mr. SYDNEY TIBBLES (London, W.1) writes:

An internal rectus exerciser for the training of weak internal recti which are causing exophoria has been made for me by Messrs. Theodore Hamblin Ltd., of 15, Wigmore Street, London, W.1.

The rod (see Fig. 1) is held to the root of the patient's nose, and the test objects are brought slowly in until they appear double. This is done without the patient wearing his glasses. The patient moves them out to arm's length, and

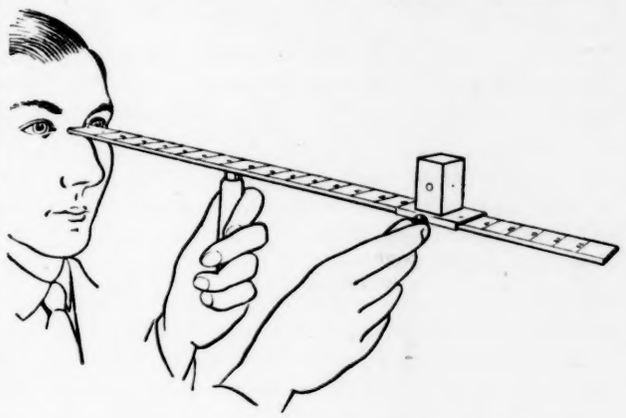

FIG. 1.—The apparatus.

repeats the process for as often and for as long as ordered. This exercises the weak muscles, and the patient does not find it so dull as moving a pencil point backwards and forwards. Any increase in the power of convergence can be noted on the scale. The usual treatment is to order prisms, bases *in*, combined with the correction of any error of refraction for constant use, and exercises with stronger and stronger prisms, bases *out*, which will enable the patient to overcome the diplopia by their use. The former tends to weaken the already weak muscles, while the latter is expensive if the prisms have to be perpetually changed.

By making use of diffusion circles the objects change their appearance: the dot becomes a ring; the ring a dot surrounded by a ring; the line broadens, while the pupil of the eye changes. These exercises will cure moderate degrees of

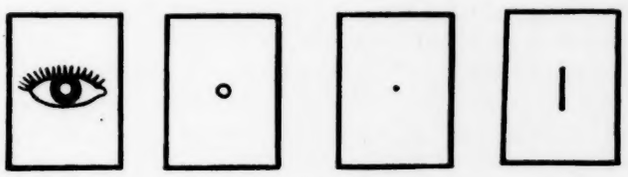

FIG. 2.—Test objects.

exophoria and prove of help to greater ones, but in cases that will not yield to treatment and in which the patient still gets double vision and headache in near work I have successfully tried weakening of the external and advancement of the internal rectus.

The designing of the test objects has been admirably done by Messrs. Hamblin's artists at my suggestion.

INTRAMUSCULAR LIVER EXTRACT

Boots Pure Drug Co. Ltd., Nottingham, have prepared a useful pamphlet describing the use of their preparation hepastab by intramuscular injection in the treatment of pernicious anaemia. An account is also given of the use of the preparation in a variety of other conditions, which include sprue, *x*-ray sickness, pernicious anaemia of pregnancy, and agranulocytic angina. The pamphlet concludes with a useful series of references to recent work. A copy will be sent to members of the medical profession who apply for one to Messrs. Boots.

British Medical Journal

SATURDAY, NOVEMBER 16th, 1935

METHODS AND PURPOSE OF BIOLOGICAL STUDY

The reprints of two recent articles by Professor Raymond Pearl of Johns Hopkins University contain between them some of the most suggestive thoughts on the teaching of biology which have lately been published. One is entitled "Human Biology in Schools and Colleges," from *School and Society* (July 27th, 1935); the other is "Biology and Human Trends," from the *Journal of the Washington Academy of Sciences* (June 15th, 1935). It is recalled that it was Thomas Henry Huxley who, in 1872, at the School of Mines, established the then new system of teaching biology by well-organized laboratory work on selected "type forms"; that his prophecy that this method would "bear great fruit" has been justified by the fact that the system has not been departed from to this day; but that nevertheless Huxley himself "came in the end to see clearly that except for systematic morphology—and indeed much of that—a great part of the fundamental principles of biology could be very effectively taught from one single well-chosen organism." Hence matured his book "*The Crayfish: An Introduction to the Study of Biology*," a classic which focused attention on basic principles and avoided distracting the student with unimportant complexities and detailed differences of structure. Professor Pearl's contention is that this method of study should now be newly applied, but that the "type" which can be used most effectively for this purpose and which will in the end influence more profoundly than is now the case the "outlooks, attitudes, and indeed the whole lives" of the students and their fellows is the human type.

Professor Pearl enunciates the quite definite conclusion that "human biology is going to be taught in our colleges and universities in the near future, and in our schools shortly thereafter"; and his reasons for believing and welcoming this are well expressed and cogent. He says, as has repeatedly been insisted upon in the columns of this *Journal*, that "biology all too often busies itself with the dead and pickled; and certainly, as we commonly teach it, is not very vitally related to the concerns that confront a man in the daily business of his living. . . . But surely it is clear that its object, its basic philosophical justification, is a wider and deeper and more useful understanding of *living* nature, of which man is the pinnacle." Man's natural interest in his own biological history and in his own biological destiny is sufficient in itself to make the subject, studied in this way, more real and attractive; and, in fact, more is known about the biology of man than about that of any other organism; moreover, his psychological and sociological development is unique. These facts combine to make the human type more illuminating and more useful as a basis for the teaching of general biological principles than any other. Such is Professor Pearl's general line of argument, and though, no doubt, it is not difficult to make out a case for pursuing the study of life from the relatively simple to the more complex, it may be even more effective to base it upon that which is experienced in priority to that which is inferred.

The latter of the articles to which reference has been made illustrates in greater detail, with much concentration of thought and language but with admirable clearness, the practical applications to human life which make biology thus taught so interesting and valuable. The four basic biological themes Professor Pearl identifies as the urge to personal survival, the urge to reproduction, variability both genetic and somatic, and the environment that conditions and in some degree determines vital phenomena. He discusses social consequences of these established biological principles, and asks what all the greatly increasing knowledge of biology, especially of human biology, should actually mean for humanity, and how it should help us to attain to a better and more comprehensive understanding of the whole nature of man. Among the problems rapidly reviewed are those of the growth and control of population, of the causes of war, of the effects of social inheritance and tradition as related to true biological heredity, of the fallacy of eugenic selection as commonly understood, and of man's power to make his own environment and to alter his own outlook. Although one may not be in full agreement with every detailed conclusion, it is impossible not to be impressed with Professor Pearl's broad inferences. "We are beginning to understand," he says, "how conduct, normal and abnormal, moral and immoral, is the expression of 'animal drives' or urges rather than of either free will or terrestrial and heavenly precepts. It does not seem extravagant to expect that, as this understanding broadens and deepens, ways may be found to bring it about that men will act somewhat more intelligently in politics, business, society, religion, and elsewhere than they sometimes have in the past. The ever widening and deepening flow of biological knowledge is furnishing a solid scientific groundwork for a philosophy of life based on releases, in contradistinction to the philosophy of life based on inhibitions and prohibitions that has so long held us enthralled. I am not unaware that current political philosophies in various parts of the world look backward in this regard, and insist on more prohibitions and regimentations. But they are going against biology, and if I read the history of evolution aright, biology will win. Nature is never in a hurry." His final reflection is: "The bulk of scientific effort is, and always has been, directed towards analysis unaccompanied by synthesis. . . . But analysis at best leads only to knowledge; while synthesis may furnish wisdom. And mankind sorely needs more wisdom right here and now!"

DEATH IN THE ASTHMATIC ATTACK

That asthma "never kills" seems to be an accepted fact, though many sufferers often say they wish it would. Reports in the literature of deaths during asthmatic crises in uncomplicated cases are extremely rare, but probably many more fatalities occur than are reported, owing to a lack of post-mortem evidence. Not only do asthmatics die during crises, but death has taken place during the apparently simple and harmless process of skin testing and during desensitization, as well as from the more commonly recognized danger of serum injections. The interest to the allergist of death during a crisis lies in the probability that some post-mortem finding may throw light on, or provide evidence in favour of, one or both of the much-disputed anatomical or physiological bases for the asthmatic seizure—namely, spasm of the bronchial muscles, and oedema of the lining membrance of the walls. In other words, do the patients die from respiratory failure due to the shutting off of the whole of the oxygenating system by the sudden spasm of the bronchial muscle, or from the mechanical obstruction produced by oedema of the walls and the pouring out of a thick viscid exudate; or, as others suggest, do they die from cardiac failure due to vagal inhibition? Brulé, Hillemand, Delarue, and Netter[1] have made a careful post-mortem study in the case of a woman of 45 years whose severe asthma had first appeared four years previously following an electric shock from a 220-volt current. The mechanical blockage theory was supported by the macroscopic examination of the lung, which revealed most of the bronchi blocked in their whole length by mucous plugs. Histologically the calibre of all the bronchi, especially in the non-cartilaginous portions, appeared to be increased and the bronchial musculature much reduced, suggesting a lack of muscular tone in the walls. The mucous plugs showed the characteristic Curschmann spiral formation embedding cells filled with eosinophilic granulations, and eosinophilia was present not only in the bronchial walls, but also in the bronchial lymph nodes.

In perusing the reports of necropsies in cases of asthma one is struck by the infrequency of pathological changes in the tissues. The only notable changes are, first, in the lungs themselves, where there is found a mechanical alveolar distension rather than what is erroneously termed a pathological emphysema; and in certain types of cases some chronic bronchitic changes are also present. Secondly, in the thoracic wall a dorsal kyphosis and an increase in the antero-posterior diameter are observed; and, thirdly, there are certain cardiovascular changes. While the former two groups of changes are accepted by most clinicians, the latter complications are denied by many. Though in long-standing cases of the disease permanent damage to the heart is rare, during the attack certain cardiovascular changes do appear. These have been studied at some length by Arnovljevic and Milovanovitch.[2] They produce oscillographic and electrocardiographic evidence taken before and during asthmatic attacks in eight cases. They show that during the attack there occur: (1) Changes in the cardiac rhythm, notably acceleration, occasionally succeeded by a fall and a syncopal attack. (2) Respiratory changes in the volume of the pulse, its amplitude diminishing with inspiration. This is known as the paradoxical pulse and is absent in certain circumstances, such as lying down during a slight attack. (The authors suggest that this type of pulse is related to the type of respiration, being more pronounced with thoracic than with diaphragmatic breathing.) (3) A diminution in the difference between the systolic and diastolic tension of the pulse. Their results confirm in all particulars the similar work previously reported by Tinel and Jacquelin,[3] and their observations on the variations in the pulse with standing and lying afford a very reasonable explanation of the apparent discrepancies in the results of different observers on the presence or absence of the paradoxical pulse in the asthmatic crisis. Asthma, like the sphinx, is very reluctant to give up its secrets.

[1] *Bull. et Mém. Soc. Méd. des Hôp. de Paris*, June 10th, 1935, p. 981.

[2] *Arch. des Mal. du Cœur*, March, 1935, p. 154.

[3] *Bull. et. Mém. Soc. Méd. des Hôp. de Paris*, 1931, xlvii, 440.

PREVENTION AND TREATMENT OF PNEUMONIA

In 1934 pneumonia in its various forms was the cause of 28,623 deaths in England and Wales, the equivalent of 707 deaths per 1,000,000 of population. This is considerably below the high figure for 1929, when there were in each 1,000,000 of population 1,107 deaths from pneumonia, without mention of influenza, besides 359 deaths from influenza with pneumonic complications. Nevertheless, the Minister of Health has deemed it advisable to issue to county councils, sanitary authorities, joint hospital boards, and isolation hospital committees (England) a revision of the memorandum on this disease which was originally prepared and circulated in 1919.[4] In the revised memorandum the scientific information has been brought up to date, and special attention is directed to the administrative measures now thought necessary. It is pointed out that the death rate in pneumonia in the later part of life tends to rise with increasing urbanization, Greater London registering higher rates than does any other region. The disease appears to be sometimes due to invasion of the lungs by pneumococci commonly present in the normal mouth, but also (and more generally than was once thought) to contact infection. The most active predisposing cause is an attack of one of the infectious fevers, particularly measles, whooping-cough, or influenza, and the death rate is highest in general for occupations requiring continual exposure to extremes of temperature in a dusty atmosphere, other factors being fatigue, exposure, poverty, malnutrition, insanitary surroundings, overcrowding, and inadequate clothing. From these considerations certain practical conclusions in regard to prophylaxis and general administrative measures are drawn. Isolation of the

[4] Ministry of Health. Memo. 189 Med. 1935. H.M. Stationery Office. (1d.)

patient should minimize droplet infection, it being remembered that in ordinary conversation infected material may be projected four feet, and during coughing or sneezing it may travel as far as ten feet. These facts must govern the number of patients admitted to a hospital ward, and the careful disinfection of any material likely to have become infected. Prophylactic gargling and gentle douching of the nose are recommended for those who attend on pneumonia patients, while in the nursing of cases in which there is associated influenza or some other infectious disease the wearing of face masks is desirable. Free ventilation and sunlight (when there is any) are important for patient and attendants alike. So far as general administrative measures go, the sanitary authority should be prepared to give facilities for sputum examination. The provision of a service for affording skilled nursing should be the first care of a local authority, in some places by an extension of the service normally existing for domiciliary nursing of measles. The arrangement, which is sometimes made through the local district nursing association or by an *ad hoc* appointment of a whole-time nurse, should as far as possible permit rapid expansion and the creation of an emergency service in time of epidemic. The Minister adds that, where nurses are provided by a local authority for domiciliary nursing, it should be clearly understood that each is under the orders of the medical practitioner attending the patient, and that there must be no interference with his instructions. Since the disturbance of pneumonia patients involves special risk, great care must be taken in selecting cases for removal to hospital. Regard should be paid to the sanitary conditions of the home, the possibility of isolation at home, and the means and facilities for home nursing and general care. In some cases, however, removal to hospital may be the patient's only hope of recovery. In hospital, cases of pneumonia should, if possible, be treated apart from other diseases, with full attention to prophylactic principles. No special disinfection, chemically or by apparatus, appears to be called for, except as regards the discharges from the patient. It is important, however, that the sick-room and its contents should receive careful wet cleansing.

THE LONDON SCHOOL OF HYGIENE

The London School of Hygiene and Tropical Medicine has entered upon its second decade. In the annual report of the board of management to the court of governors some solid achievements of its first ten years are looked back upon with satisfaction. These include the erection of the imposing building in Keppel Street, soon to have as its opposite neighbour the headquarters of the University of London, the establishment of post-graduate courses in every branch of medicine and hygiene covered by the School, and the incorporation within the institution of the old School of Tropical Medicine founded by Manson, and, recently, the Ross Institute. The accounts for the year show a deficit of nearly £3,000, although additional contributions have been raised to make up for the discontinuance of the special grant from the Rockefeller Foundation—the last of a series of grants due to the large-minded generosity of that Foundation, and outside the scope of its original undertaking. A letter from the president of the Foundation is published, in which he states that his members and officers have at all times felt it a privilege to co-operate with the London School, "which because of its able staff and sound direction has been an increasingly powerful force in preventive medicine." The School hopes to raise subscriptions to supplement the university grant and the income from endowments to the extent of £12,000 to £15,000. In 1934–5 the donations amounted to a little over £5,000, and the annual subscriptions to nearly £6,000. The report of the dean (Professor W. W. Jameson) contains a summary of the work in each of the twelve or more divisions and departments. The Ross Institute has now become an integral part of the work of the School, and an increasing number of business concerns are seeking its advice on matters of tropical hygiene and the selection of medical officers for appointments abroad. The policy of the School has been to encourage members of its staff to visit tropical and subtropical countries, and allusion is made to Sir Malcolm Watson's prolonged tour of Central and East Africa and to the visits of other members of the staff to Macedonia, India and Ceylon, the East Indies, and Uganda. The number of students enrolled during the year in one or other of the regular courses was 179, a small increase on last year's entries, and of this number eighty-four came from the home country, thirty-six from India and Ceylon, and twelve from the United States. In the Division of Clinical Medicine the subjects of special investigation have been sprue, malarial anaemia in man and experimental haemoglobinuria in monkeys, blackwater fever, and the immunological reactions in helminthic diseases. In the Department of Protozoology, following an expedition of Professor J. G. Thomson to Nyasaland, an investigation has been made of the part played by haematophagous flies in the mechanical transmission of trypanosomes, leishmanias, and spirochaetes. In the Division of Bacteriology, thanks to a grant from Imperial Chemical Industries (which unfortunately has now come to an end), the work conducted by Professors Topley and Raistrick on the isolation of a chemical substance of high immunological value from *B. aertrycke* has proceeded most satisfactorily. In another field a very thorough study of the various methods of assessing the bacterial content of milk has been completed by Professor G. S. Wilson, whose report is about to be published. An investigation on the lethal effects of oil on mosquito larvae is now in progress in the Department of Entomology. In the Division of Epidemiology and Vital Statistics Professor M. Greenwood states that owing to certain reasons, such as changes of organization in official departments, the liaison of the Division with the Ministry of Health and the Medical Research Council has become closer. Much time has been given by several of the staff to an elaborate statistical study of a number of public health problems which will almost certainly be held as a confidential document. In the Division of Public Health "tutorials" have been substituted for many of the more formal lectures. A large amount of useful work is recorded under the heading of "industrial physiology and medical-industrial psychology," including reports on sickness absenteeism and labour wastage, and the Malaria Research Unit, under Sir Rickard Christophers, has continued to function as a centre for experimental work.

A PHYSICIAN'S HOBBY

Every medical man should have a hobby. Sooner or later *subeunt morbi tristisque senectus*, as Virgil told us long ago, and the sadness of old age and sickness will be intensified if there is nothing to fall back upon except the thoughts of what might have been or what could have been done. But the hobby should have begun early whilst its owner was still young and busy. It can then await fruition until he is old enough and wise enough to have leisure. It should be a hobby to make its owner frequent the highways and byways on foot, in all weathers and at all risks. Health, pleasure, and profit may then accrue. The haunting of bookstalls and the searching of junk shops are examples for the town dweller, but there are many others equally seductive for those who live in the neighbourhood of a country market. Such wise counsels have been followed by Sir StClair Thomson. He collects pharmacy jars, a never-ending joy for the questions to which they give rise—their place of origin, their provenance, their artistic merit or otherwise ; and, besides, they have to be found individually and in unlikely places. A well-illustrated article in the October number of the *Chemist and Druggist* shows his success and the catholicity of his taste. Majolica, French, Dutch, Spanish pottery and English ware are all well represented by choice specimens which it must have been a joy to find and a greater joy to show to his numerous friends.

UNUSUAL MEDICO-LEGAL CASES

With a view to stimulating interest in forensic medicine, Dr. H. S. Martland, editor of the Forensic Medicine Section of the *American Journal of Surgery*, has for some time included in his weekly clinico-pathological conferences at the Newark City Hospital, N.J., as many unusual cases with a legal bearing as he can collect, together with photographs of specimens. He advances the idea as a fertile one, opening the way to co-operation between hospitals and medico-legal authorities. He complains that medico-legal knowledge in the United States is still mediocre, and its importance in the detection of crime is poorly understood by laymen and physicians alike, but declares that with the material available in the States an awakened interest on the part of the medical profession would soon place his country in the forefront of forensic medicine. One of his cases is that of a newborn baby, the child of an unmarried mother, whose father, in order to avoid disgrace and thinking the infant was dead, buried it in the back yard. Although the outdoor temperature was just below freezing-point and the baby was not quite full term it was still alive when the physician dug it up three-quarters of an hour later, and six months afterwards was perfectly healthy. The Continental literature apparently contains a number of similar instances in which infants have survived after burial for a number of hours. Another unusual case was that of a middle-aged Chinaman who died suddenly, and was found to have a large number of purplish bruises on his chest and old pulmonary tuberculosis. On inquiry it was found that the bruises had been caused by a friend beating the deceased's chest with the back of a large brass spoon, an old Chinese remedy for pain in the chest. A third correspondent reports a case in which a workman had imprudently entered a drying oven in a paint factory without stopping the fan, which was 6 feet in diameter and revolving at enormous speed. His head came into contact with the edge of the fan and was cut clean in half, vertically and back to front, as though it had been sawn. Two cases are reported of the removal of large foreign bodies from the rectum. There is everything to be said for familiarizing the general practitioner and hospital doctor with medico-legal work of all kinds. The Medico-Legal Society in London often holds demonstrations with this object, and if the practice were extended to clinical and post-graduate meetings it would be all to the good. Sir Bernard Spilsbury alone must see enough such cases in a month to provide valuable instruction for several meetings. Six months ago the Home Secretary appointed a committee of experts to advise him as to the manner in which the new metropolitan police laboratory at Hendon could best be developed in the public interest. Lord Atkin, the chairman of this committee, has long advocated the creation of a central medico-legal institute for teaching and research as part of the University of London, and we may be sure that he will direct his influence towards that goal.

TUBERCULOSIS AMONG STUDENTS AND NURSES

An increasing number of studies dealing with tuberculosis among students and nurses have in recent years been made both on the Continent and in America, and two papers recently published in the U.S.A. deserve attention. Hetherington, McPhedran, Landis, and Opie, who began this work in 1930, give interesting figures[1] based on annual Mantoux testing and chest radiography in medical, dental, and law students of the University of Pennsylvania. The tuberculin sensitization of the medical students is 84 to 87 per cent. on entrance and rises to over 99 per cent. on graduation. Dental and law students in their final year show a similar high figure, so that the opportunities for *infection* appear as frequent in them, presumably due to the life in a large city. In four graduating classes (totalling 521 medical students) 15 to 20 per cent. were found, on radiography, to have tuberculous lesions at the apex. Calcified lesions in the lung parenchyma or hilar nodes were not considered, but latent lesions are included in these figures. (Latent lesions are described by Opie and McPhedran[2] as follows: " Latent tuberculosis may be defined for convenience as that which is unaccompanied by symptoms or physical signs, causes no obvious disturbance, and is not recognized by the physician. There is no sharp distinction between latent and manifest tuberculosis, and in some instances latent tuberculosis is more extensive than that which is recognizable. Ability to distinguish between latent and manifest disease will vary with the means available for diagnosis.") More advanced infiltrations, both above and below the clavicle, sometimes producing symptoms, were discovered in 11.5, 6, 5, and 8.3 per cent. of the final-year students in 1930, 1931, 1932, and 1933 respectively. The authors suggest that the decreased incidence in the three later years " may have been due, in part at least, to suitable prophylactic care taken by the students with small lesions,"

[1] *Arch. Int. Med.*, 1935, lv, 709.
[2] *Amer. Rev. Tuberc.*, 1926, xiv, 347.

and the fact that after the first examination "contact among the students with persons whose sputum contained tubercle bacilli was presumably ruled out." Among 400 students who were followed throughout their medical course 7.5 per cent. had new lesions or showed progress in old lesions, but only 1.75 per cent. developed clinical tuberculosis. It was noted that occurrence of new and progression of old lesions was more frequent in the third year—corresponding to the beginning of actual hospital work—than in the other three years combined. While these authors' investigations have not reached the stage at which dogmatism is justified, two of their conclusions are worth quoting. "Medical students come in contact with tubercle bacilli under conditions that expose them to danger of infection, but it is uncertain whether this exposure actually produces latent or manifest disease." (Apical disease was twice as frequent as in dental and law students, and the more advanced apical lesions occurred much more frequently.) Also: "The results in this small group do not indicate that there is a significant variation between the students giving a negative reaction to tuberculin and those giving a positive reaction in their liability to the development of tuberculous lesions." A paper by Pollock and Forsee[3] deals with a survey of 227 medical officers, 19 dental officers, and 518 members of the Army Nurse Corps (that is, a definitely older group) on duty at Fitzsimons Hospital during a ten-year period. In all of these, on commencing duty, they were able to demonstrate "*x*-ray evidence of past invasion by tubercle bacilli." Four medical officers developed tuberculosis either while at the hospital or subsequently; one of these had a latent lesion on joining the staff. One dental officer developed tuberculosis, but in him also definite latent tuberculosis had previously been discovered. Among the nurses eight developed manifest tuberculosis, but six of them had shown *x*-ray evidence of healed or latent tuberculosis on joining the staff. On the basis of these figures Pollock and Forsee conclude that the dangers of reinfection are minimal, and that this is due to the immunity acquired by previous infection—1.7 per cent. of 764 individuals became ill, but in only three cases, or 0.39 per cent., were they unable to demonstrate causative factors apart from constant exposure to tuberculous infection.

VITAMIN DEFICIENCIES AND THE HEART

The term "idiopathic" is becoming slowly displaced from medical literature, but ignorance must still be the excuse for its application to certain conditions, among which various forms of cardiac hypertrophy in young subjects can be counted. Dr. Isaac Abt, in one of his masterly discourses, recently[4] made this unexplained group of cardiac hypertrophies the starting-point for a review of existing knowledge on the child's heart in avitaminosis. In beri-beri as it affects infants in certain parts of the world the heart is often involved in the severe forms of the disease. An unstable pulse rate, pallor, dyspnoea, a low systemic blood pressure, and definite enlargement of the right side of the heart are the principal manifestations. Curious "attacks" may occur, resembling "heart attacks" in later life, and death may ensue from cardiac failure with generalized anasarca. According to Abt there is a striking similarity between the microscopical appearances of the cardiac muscle as reported in beri-beri and in some of the cases recorded as idiopathic hypertrophy of the heart. Some authorities have stated that in the early stages of beri-beri the whole heart is involved, and the predominance of the right-sided changes only occur later. Abt points out that in this connexion the diet of the mother during pregnancy becomes of great importance, and it should be carefully inquired into when cardiac hypertrophy is found in a young infant. Modern vitamin B concentrates should certainly receive a trial in babies with unexplained cardiac enlargement. Turning to other deficiency disorders Abt discusses the possibility of cardiac changes in scurvy. Here the available evidence is conflicting, and associated anaemia may make the interpretation of pathological findings difficult. Two points emerge from the literature: right ventricular enlargement has been reported by several observers as occurring in a large proportion of fatal cases of scurvy, and, secondly, certain workers have attempted to prove that rheumatic affection of the heart may represent an infection occurring in a scorbutic subject. Against this latter suggestion must be put Bruce Perry's negative findings (*Lancet*, 1935, ii, 426): on the basis of the Harris-Ray test for vitamin C deficiency, he found no evidence of this state in children with rheumatic heart disease, active or quiescent. As regards rickets Abt goes back to the observations of William Jenner, who claimed that "white spots" on the pericardium were the result of friction against abnormally large costo-chondral junctions. Later workers have commented upon changes in the position of the heart in severe rickets with thoracic deformities, and both right-sided and left-sided cardiac enlargement has been reported by observers in necropsies on rachitic subjects. Beyond doubt, the mechanism of the connexion between cardiac changes and vitamin D deficiency is still obscure.

[3] *Amer. Rev. Tuberc.*, 1935, xxi, 203.
[4] *Amer. Journ. Dis. Child.*, August, 1935, p. 455.

The next session of the General Medical Council will open on Tuesday, November 26th, at 2 o'clock, when the President, Sir Norman Walker, M.D., will take the chair and deliver an address. The Council will sit thereafter from day to day until its business is concluded.

The British Journal of Anaesthesia offers a prize of £10 for the best essay on any subject directly concerned with the administration or physiology of anaesthetics. The essays must be received by the editor (19, St. Andrew's Mansions, Dorset Street, W.1) not later than August 1st, 1936. They should not exceed four thousand words and must be on one side of the paper only. Candidates must be men or women holding a medical qualification within the British Empire. The Editorial Board are the sole judges, and claim the right to publish any or all of the essays subsequent to the allotment of the prize.

The biennial Huxley Lecture on recent advances in science in their relation to practical medicine, founded in commemoration of Thomas Henry Huxley, will be delivered at Charing Cross Hospital Medical School by Dr. Edward Mellanby, F.R.S., on Thursday, November 28th, at 5 p.m. His subject is "The Rapid Advance of Science since the Time of Huxley." Admission free by ticket, obtainable from the Dean of the Medical School, Chandos Street, W.C.

TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some diseases of the nervous system met with in general practice.

THE TREATMENT OF EPILEPSY

BY

S. A. KINNIER WILSON, M.A., M.D., D.Sc., F.R.C.P.

Epilepsy is a symptom and not a disease. The symptom takes the form of occasional fits, and these may be of very different kinds indeed. In numerous cases the cause of the fits is known, or at least the circumstances under which they occur and recur. Old distinctions between "symptomatic" and "idiopathic" epilepsy are being discarded, for the good reason that advance in knowledge has proved them not to be fundamental. None the less, it is still convenient to distinguish fits due to recognized and recognizable conditions—for example, cerebral vascular disease, intracranial growths, cerebral neurosyphilis, and so forth—from fits arising on an unknown basis. The latter are "cryptogenic": their origin is hidden, though doubtless one day it will be discovered. As knowledge increases fewer cases are relegated to the cryptogenic class, and more are found to have an underlying causation that can be ascertained. Still, this group is a formidable one, and the pathogenesis of the fits by which it is revealed is highly complex; or rather, not all of the presumptive pathogenic factors seem operative in every case. This is one of the reasons why treatment of the cryptogenic variety lags behind.

Broadly speaking, a fit represents discharging excitability on the part of certain motor nerve cells, and the problem set the physician is to reduce excitability without at the same time harming normal function. The abnormal neuronic state may be inborn or acquired; it may be invoked by pathological conditions such as have been (in part) alluded to above, and by others the nature of which is obscure, but less so than it once was. Chemical, humoral, vascular, and mechanical factors are among those which, singly or otherwise, tend to precipitate attacks; they are determinants with which treatment will have to deal.

Prophylaxis

Manifest sources of irritation, whence stimuli impinge on the central nervous system, have to be sought for and removed. This will entail search through the systems of the body—in particular the alimentary—and scrutiny of ears, eyes, teeth, nasal passages, and so on. The literature contains many reports of "marvellous" cures following the removal of carious teeth, impacted wisdom teeth, septic tonsils, refractive errors, phimosis, intestinal worms, nasal polypi, and what not. None of these is to be ignored, but it is unwise to believe that the issue will always be successful. The complexity and variability of the factors forbid such optimism. Hygiene of the mind, too, must not be overlooked when there is reason to suppose a potential cause of mischief lurks therein.

Whether transmission of epileptic tendencies should be controlled by vetoing marriage to members of epileptic stocks is an intricate question incapable of any stereotyped solution. When there is evidence of cryptogenic epilepsy in direct or indirect line of descent the possibility of its reappearing cannot be dismissed. Too little is known of human inheritance for an accurate forecast in any given case. If the evidence points to transmission of nervous or mental disease in general, or of epilepsy in particular, the problem solves itself, and the proposed marriage is stated to be inadvisable; if hereditary factors seem of minor potency or are lacking, and the previous history of the persons concerned is good, then the decision can be left to them (as indeed it must always be), but the chances are said to be in their favour. For all types of epilepsy whose causation is plain or presumptive no anxiety on the score of possible transmission need be felt; acquired characters do not reappear in a succeeding generation.

Immunity

Epileptic fits are sometimes controlled by nature's own methods. Two thousand years ago Hippocrates observed that intermittent fever replaced or mitigated epilepsy ("quartana epilepsiae vindex appellatur"). Fits have long been known to disappear at times in the course of exanthems and other fevers of childhood, especially perhaps measles, chicken-pox, typhoid, and scarlatina. The subject merits much further investigation.

General Hygiene

Common sense will suggest revision of the patient's mode of life, with a view to the correction of irregularities or faults. He should be allowed to take his share in games and recreations, even at some little risk, unless plain evidence of deleterious effect is forthcoming. He should not be denied the pleasures and indulgences of youth except when the nature of his case renders it imperative to forgo them; he should then substitute regular exercise under supervision or in the quiet of home. A good physique must be promoted in every possible way. On the mental side nothing should be done that is likely to sow, in a sensitive mind, the seed of inferiority. An atmosphere of normality should be sedulously cultivated. As a preliminary to such hygienic methods it is essential to find out if possible (*a*) whether any particular abnormality of mind or body is acting as a precipitant, and (*b*) whether any combination of circumstances seems responsible for individual fits. Wide experience condemns the statement that the patient "will grow out of them"; the golden opportunity for correction of contributory elements comes at the beginning. Of equal value is careful inquiry with a view to the detection of any immediate excitant. Not seldom patients or parents have already observed something that "seems to bring the fit on"; it may be injudicious feeding, violent exertion, fatigue, constipation, the keeping of unusual hours, recurring anxiety, emotional strain, and so forth. Whatever the tale it should be attentively listened to, and if credence be justified a line for future treatment may be indicated.

Guidance on matters of education and avocation is often sought. In general, mental exercise is as wholesome as physical, and any notion of its "injuring the brain" can be brushed aside. Some epileptics are ineducable and unemployable from the outset; for many more the comparative ease of an epileptic colony, with its graded occupations and opportunities of self-expression at different levels, is welcome; but the great majority are not so handicapped as to need this seclusion, and choice of some suitable life-work may be perplexing. An out-

door employment is preferable; a successful living can often be made on the land, chicken-farming or bee-farming, fruit-growing, gardening, etc., being among the pursuits chosen.

Diet

A bland, simple, easily assimilated diet, neither excessive in quantity for any one meal nor hurriedly eaten, summarizes the food question. Exclusion of meat is often prescribed without either clinical or experimental justification. There is lack of evidence for abnormal protein metabolism in persons subject to fits, while the results of protein sensitization tests are mostly equivocal. Only an occasional patient is benefited by restriction of meat or by omission of some food article inducing allergic phenomena. Despite the paucity of pertinent data, empiricism has resorted to injections of peptone, milk, antirabic vaccine, and rattlesnake venom (crotalin); the last has been vaunted by some but condemned by more. A dietary from which common salt is excluded is often advocated, the theory being that chloride augments nerve-cell excitability. A salt-free diet lowers chloride concentration in the blood, and at times seems helpful in diminishing fit frequency.

Fasting has often proved of striking though temporary value. Its disadvantages are plain—namely, the discomfort it entails and the limited period for which it can be indulged. The process is accompanied by decrease of protein and basal metabolism, retention of uric acid, low blood sugar, absence of salt, dehydration of tissues, and presence of acidosis. To decide which of these several factors may be responsible for the beneficial results is difficult. Some writers believe the action of fasting is a triple effect of high fat diet (from the patient's own tissues), salt starvation, and acidosis (owing to reduction of plasma bicarbonate); others lay stress on the attendant dehydration.

Closely related is the matter of a *ketogenic diet*. If the value of starvation as a check to epileptic development can be got by a less uncomfortable method, based on similar metabolic changes, its merits must be apparent. Fasting corresponds to a high fat and low carbohydrate diet, which is a ketosis-producing combination. Ketosis is a form of acidosis. In children ketosis can be induced readily on a low ratio between ketogenic (fat) and antiketogenic (carbohydrate and protein) foodstuffs, a 3 to 1 or 4 to 1 ratio being sufficient. In adults it is more difficult. The manner in which the diet works favourably has not been fully decided; acidosis has been thought the important factor, or removal of surplus extracellular fluid from the tissues. Ketosis can be practised for much longer than starvation; its disadvantage is that in time the body becomes adjusted thereto, plasma bicarbonate returns to a normal level, and seizures reappear even with ketone bodies recoverable in the urine. A combination of the two procedures is often useful, and starvation can be employed as an emergency measure—for example, when status epilepticus appears imminent. We have no space here to supply ketogenic menus suitable for children; many are given in Talbot's *Treatment of Epilepsy* (1931).

Medication

Sedative treatment by means of drugs is an obvious mode of control, purely symptomatic though it be.

Bromide.—First place must be assigned to bromide, introduced in 1857. The medicinal value of salts of bromine in reducing or abolishing the tendency to fits needs no exposition; despite later novelties the sterling properties of the drug can never be forgotten. Its efficacy may be due to its replacing the more common chlorides of the body. Choice of salt matters little, nor does any advantage accrue by a mixture of bases, to which numerous prescribers seem partial. If good results depend solely on the amount of bromide present lithium and ammonium salts should be most efficacious, for their percentage of the halogen is 92 and 81 respectively, that of potassium bromide being 67 and of sodium bromide 57. But clinical observation confirms the superior merits of the last two. The dosage varies with the nature of the case in regard to frequency and severity of fits and the patient's age. Rarely if ever is a daily quota of more than 60 grains desirable; good results generally follow a morning and evening dose of 25 grains, which is commonly well borne. The effect should not be dissipated by inadequate single doses; 15 grains twice a day may well be preferable to 10 grains thrice a day. It is advisable to seek to concentrate on that period (if such there be) of the twenty-four hours which is most likely to witness attacks: for nocturnal epilepsy a single dose on retiring may be sufficient; for morning cases, a dose at night and another on waking but before rising. The principle is capable of extension—for example, for so-called menstrual epilepsy. Systematic administration is imperative; neglect is fatal. Once a good result is secured the amount can be lessened by degrees; the safest way at first is to reduce total but not separate dosage—for example, the medicine can be taken twice a day instead of three times, then once, then on alternate days, and so forth. It is always preferable to err on the side of delayed reduction. I do not begin graded withdrawal till two years have been passed in security, and have sometimes been impressed by the unwillingness of the patient to accept a proposal for even moderate decrease. Those cases respond best to bromide that best tolerate its long-continued use. When the total amount is too high symptoms of bromism may develop, and these are easy to recognize. It can be obviated to a large extent by the use of arsenic in the bromide mixture, and can be treated with sulphur ointments or by resort to vaccine methods. In a small minority of cases bromide is badly tolerated from the outset; the confirmed epileptic, too, often does badly with the drug.

There are many preparations on the market whose staple ingredient is simply one or other salt of bromide. They include bromocarpine (potassium bromide and pilocarpine), brompin or brominol (bromide and sesame oil), bromalin (hexamine ethyl bromide), Gélineau's dragées (potassium bromide, antimony arsenate, and picrotoxin), sedobrol (sodium bromide and sodium chloride), etc. "Trench's remedy" contains potassium and ammonium bromide. Of such remedies (not "secret") the dragées of Gélineau have in my experience seemed the best.

Luminal.—Luminal (phenyl-ethyl barbituric acid) was introduced in 1912. Gardenal is its French equivalent. Luminal sodium is soluble, and just as efficacious as the other. Luminal is not the equal of bromide in general applicability, though the same principles should be observed in its use. In general it is best to begin with, say, half a grain of the sodium salt morning and evening, increasing to three-quarters or one grain if desirable; three or four grains in the twenty-four hours should represent a maximum. On the whole, major epilepsy responds better to luminal than the minor form; other types and variants also do well with it, especially perhaps those of the epileptic borderland and cases with mental symptoms. The drug often helps, too, in conjunction with bromide (luminal sodium is incompatible with the ammonium salt), or borax, or other sedatives. Its advantages comprise absence of mental depression and of lowering of somatic function when exhibited for a long

period ; disadvantages include the relative ease with which tolerance is established. Its effective dose, too, is not far removed from the toxic dose, since scarlatiniform and other rashes appear with some readiness ; vertigo, ataxia, and either restlessness or torpor and stupor may develop if the drug is pushed too far. I find it acts best in mild and moderate epilepsies, given alone ; for more severe or semi-chronic cases its combination with bromide or other sedative is desirable. It appears to have least value in serial types recurring at longish intervals.

Other Drugs.—Other useful though somewhat uncertain medicaments include borax and some of its compounds. Sodium biborate in doses of 5 to 15 grains twice a day often is serviceable for both major and minor varieties, either by itself or coupled with bromide or luminal. Belladonna in union with bromide also merits favourable mention ; not less than 5 to 15 minims should be taken two or three times a day. It is often very good for petit mal. Dialacetin occasionally procures relief, and has been given with benefit in nocturnal epilepsy. Nitroglycerin (in the form of liquor trinitrini) is useful for petit mal and visceral fits. No good purpose would be served by any further comment on the list of drugs, which is indeed lengthy. All must stand the test of experience, and while those that have successfully done so can be numbered virtually on the fingers of one hand, we should always be prepared to try empirical treatment with any alleged remedy till failure compels us to discard it.

Symptomatic Treatment

During a major seizure nothing can be done except to loosen clothing at the neck for freedom of respiration, to obviate accident by quick consideration of the circumstances, to prevent tongue-biting by insertion between the teeth of any suitable object at hand, cork or india-rubber being preferable to harder materials. The patient should be allowed to sleep his attack out, nor is any stimulant needed. In the case of fits having an aura of measureable duration arrest can at times be effected—for example, in Jacksonian cases the limb can be firmly seized or a ligature tied round the segment (for instance, a piece of tape). When aura and convulsions are of a more general kind a powerful stimulus reaching the sensorium may inhibit the commencing discharge (smelling salts, amyl nitrite inhalation) ; the excitation may be of a psychical kind. Alcohol is considered taboo for all epilepsies ; yet it has within my knowledge in several cases proved instrumental in warding off a fit. Epileptic subjects occasionally find out some " tip " for themselves.

The treatment of status epilepticus depends in some degree on the particular circumstances inducing it. Should it have followed omission of bromide or other authorized sedative the natural remedy is to institute such measures at once ; but if it develops in spite of medication little benefit will be derived from massive increase. When threatened it can sometimes be averted by bromide and opiates together—for example, the prescription of Clark and Prout :

℞	Tinct. opii	♏ v
	Pot. bromid.	gr. xxv
	Chloral hydr.	gr. xx
	Liq. morph. sulph.	♏ lx

This is given by mouth or rectum, and repeated in two hours. Again, 60 grains of bromide of potassium may be combined with 30 grains of chloral hydrate for rectal administration every four or six hours. Hypodermic injection of freshly prepared luminal sodium solution (1 to 3 grains) and bromide (10 per cent.) may be similarly utilized. Repeated drainage of spinal fluid by lumbar puncture is also efficacious. Hypodermic injections of hyoscine hydrobromide (1/75 or 1/50 grain), repeated within an hour or two, are a useful adjunct on occasion. Another is paraldehyde, in doses up to 8 drachms, mixed with an equal quantity of olive oil and given per rectum. Oxygen inhalation can also be recommended ; chloroform is only a temporary expedient. Venesection and injection of saline can be performed in the robust. Heart and body must always be given support (strychnine, digitalis, alcohol, etc.), nor must diuretics and cathartics be overlooked. Plain nourishing liquids should be given by nasal tube from the beginning.

Surgical Treatment

Trephining, an ancient remedy, can have no justification if it is proposed for relief of intracranial pressure, since in cryptogenic epilepsy no permanent state of the kind has been found. But opening the skull and incising the membranes (" fenestration ") may help to relieve oedematous conditions such as are found in chronic cases. Dehydration, however, can be accomplished by magnesium sulphate, intravenous glucose, spinal drainage, and restriction of fluid intake.

The question of trephining bears also on cases with local aura or commencement, and on those of apparently traumatic origin. There can be no doubt (as personal experience and that of a number of other neurologists and neuro-surgeons shows) that removal of the actual point from which convulsions start and radiate, small though it be, has been succeeded often enough by enduring freedom from attacks.

Excision of the cervical sympathetic ganglia was practised a considerable time ago now, the theory being that vaso-dilatation would ensue and the alleged anaemia inducing fits be neutralized. More recently the effect of periarterial sympathectomy of the carotid has proved satisfactory in selected cases.

Psychotherapeutic Treatment

That psycho-analysis and psychotherapy should leave epilepsy alone was hardly to be expected. Induction of epileptic fits by affective stimuli is well recognized to occur now and again. Involvement of the mental level in epilepsy, at one phase or another, is apparent to every observer. But whether such data warrant the inference that epilepsy has a psychogenic origin and is amenable to psychological treatment is another matter. It is impossible, for example, to regard with patience the assumption of Stekel that the tongue-biting of the convulsed epileptic is the expression of his unconscious longing to bite and to see blood flow, or another claim, that the epileptic in his fit seeks to retreat again within the maternal uterus. The proper attitude to adopt, as it seems to me, is to accept psychical factors initiating fits as only one of several classes, and to deal with them as with any other inciting causes—that is, if possible, by their removal.

The Health Committee of the State in Sweden has proposed the establishment of public dental clinics throughout that country. The scheme provides for the division of Sweden into 425 dental districts with a total of 575 district dentists. The yearly cost is estimated at over seven million kronor (£368,400), of which 4.65 million kronor would be borne by the State. The committee recommends that public dental care should be directed mainly to the preservation of teeth, provision being made at the same time for replacement of teeth extracted for the purpose of improving mastication. The whole population is to come in the scheme with the object of their teeth being under the care of the State from the age of 3 years onwards.

CANCER CAMPAIGN IN AUSTRALIA

The sixth Australia Cancer Conference was held in Canberra in May, and an important part of its work was the consideration of two reports, one by Dr. M. J. Holmes on cancer organization in Australia and the position regarding facilities provided for investigation, examination, and treatment, and the other by Dr. F. P. Sandes comprising a report on his study of the comparable work in progress in Europe and America. Short preliminary conferences on the first day reviewed these topics and also the question of physical services necessary for the scientifically accurate application of *x* rays and radium in the treatment of disease.

Problems of Organization

The previous conference had ordered a review on the present position in Australia to be prepared, and that submitted by Dr. Holmes was generally approved. It dealt in detail with the conditions in the several States, and outlined the part played by the Commonwealth Government in the development of a scheme of control. It appeared that a considerable degree of national co-operation had already been attained, but it was concluded that a more definite scheme of national organization was desirable, and various recommendations were made. It was pointed out that there was a lack of effective co-ordination of the activities of those at work in the field of cancer control; research workers were insufficiently in touch with those engaged in treatment, and investigations into the practical problems of the disease were not well correlated to obtain the best results. For instance, cases were being submitted to surgical operation when they would obviously be more appropriately treated by radiotherapy or by combined surgery and radiotherapy. Hospital accommodation was inadequate; there was also lack of organization in the disposal of cases and want of co-operation between the various hospitals and other institutions for the reception of patients. The sympathy and support of the public had not been properly enlisted, and some provision should be made for effective and continuous education. Little attempt was being made to obtain the help of the general practitioner in this connexion, or to render him as effective an agent as he might be in obtaining for his patients that adequate examination and treatment which special equipment in the hands of men experienced in its use could alone supply. Additional *x*-ray plants were required. A scheme should be brought into being to make the special facilities for diagnosis and treatment available at fully equipped centres for all sections of the community, and wide enough to cater for the whole population in need of these facilities. There should be a development (through special clinics) of the consultative system in the examination of cases and the choice of treatment, associated with a more extensive use and correlating of case records and statistics, more effective co-operation of treatment, and the provision of adequate pathological and physical services. There should be more examination centres for the socially intermediate as well as the poorer classes, in order to speed up diagnosis and the beginning of treatment, and in this the services of the general practitioner should be more extensively used. Special provision should be made for post-graduate teaching and undergraduate instruction directed towards the elimination of delay in diagnosis and in the choice of treatment.

Dr. Holmes suggested that each State should form a strong organization, or develop the scope of its existing one, to cover the whole field indicated. The Commonwealth Department of Health should call an annual conference, to which each State organization should send its representative, to discuss matters of policy and to frame recommendations for progressive action or development of activities. In order to provide for continuity of action between the various conferences and to assist or initiate activity in the various States, the Commonwealth Department of Health, in conjunction with a standing committee, should be responsible for bringing all conclusions and recommendations of the annual conferences to the attention of the various State organizations concerned, and should keep them under attention until such suitable practical steps had been taken as might be appropriate in each case. The Department would continue to supply case sheets and statistical return forms in connexion with the uniform case-recording system, and would collect and correlate for the next conference the data supplied by the State organizations. It would also publish and distribute full reports of these conferences, and such general literature as might facilitate action on national aspects of the problem—for example, literature on the protection or health hazards in relation to the use of radium and *x* rays. The Department would also maintain its relationships with over-seas activities in the field of cancer control, in order to give and to receive useful information. Dr. Holmes suggested finally that the annual conferences might concern themselves more with the broad problems and less with details of research, though important developments in research or in treatment might be made the subject of special communications. Such a national scheme of organization would leave the State authorities free to handle their affairs as thought best locally, and to hold State conferences, but it would provide more satisfactorily for a mutual discussion of problems, the pooling of experience on a national scale, the shaping and guiding of the broad outlines of developmental policy, and the emergence of concerted action between the States themselves and between the States and the Commonwealth as a whole in furthering the policy adopted.

In the general discussion on the report of Dr. Holmes it was decided not to form an Australian cancer commission before concentrating the several cancer organizations in the States. It was thought better to appoint a liaison officer in the Commonwealth Department of Health to assist the States in their work, and also to recommend States to appoint liaison officers, appeals being directed especially to those States in which as yet there was no definite cancer organization. It was announced that the Victorian Branch of the British Medical Association would be prepared to take the lead in setting up such an organization in Victoria, and it was decided that the next conference should be held in Melbourne. The conference also supported the proposal for the early establishment of a medical research council for the advancement of medical and surgical knowledge in Australia.

Measurement of X Rays and Radium

The conference decided that it was desirable to introduce into Australia, wherever it was not already in use, the international method of measuring *x* rays in terms of the Roentgen unit as prescribed by the International Congress of 1934, and to make provision for testing *x*-ray equipment in all the characteristics necessary for its effective operation. There should be in Australia a single primary standard for the measurement of the international *r* unit. There was urgent need of facilities for the testing, examination, and calibration of scientific apparatus and instruments used in radiotherapy, and for conducting scientific investigations connected with the purely physical and the biophysical aspects of radiotherapy, and the performance of *x*-ray equipment. Such facilities, it was decided, should exist in several centres, and particularly in the two largest cities—Sydney and Melbourne—where provision should be made for the continuance and extension of existing physical services. With a view to obtaining the best results close co-ordination should be secured and relevant information be disseminated. It was thought that the Federal Government should subsidize these activities, which should be controlled by the Commonwealth Department of Public Health and the Council of Scientific Research in consultation. It was agreed that a physicist should be appointed to advise the States on the calibration of measuring instruments and the management of physical laboratory services.

Place of the General Practitioner

A discussion was held on the rights and difficulties of the private practitioner, especially in country districts, and ways were indicated in which he could be assisted. His need of being kept in touch with practical developments of diagnosis and treatment was stressed, and the wider provision of suitable facilities in connexion with these was urged. It was announced that the British Medical Association would give any help in its power to this end. It was thought that *x*-ray and radium treatment should be given only by specially qualified men, and that these should be stationed in suitable centres in the country so that patients might be treated

near their own homes. The Commonwealth would examine its resources in order to see whether more radon could be made available. A recommendation to universities to introduce into the medical curriculum some instruction in radiotherapeusis was carried unanimously.

Clinical and Research Topics

Various papers on *x*-ray necrosis were read and discussed; these have been published, with the other clinical papers, in the *Medical Journal of Australia*. The report of the conference contains papers read on recent developments in the measurement of *x* rays and on cancer mortality statistics and the results of treatment. It was decided that for the next conference there should be obtained a statistical study of the results secured in the treatment of cancer of the tongue by various methods over defined periods, and that this study should include an attempt to discover whether the steps taken for the control of venereal disease had influenced the incidence of lingual cancer and its mortality.

PROGRESS IN MEDICAL SCIENCE

DR. EDWARD MELLANBY'S LECTURE

On October 31st Dr. Edward Mellanby, F.R.S., secretary of the Medical Research Council, gave a lecture on "Progress in Medical Science" under the auspices of the Sir Halley Stewart Trust.

Although, he said, there was good evidence that medicine had been an organized study since the earliest days of civilized life, it was only in the past 100 years that the subject had made substantial advance. This relatively dormant state of knowledge, lasting over a period of thousands of years, was due partly to the idea that disease was caused by the invasion of the body by evil spirits—a view held by the Egyptians, Babylonians, and Assyrians—and partly to the belief that man's body was of no account as compared with his soul—a view held throughout the Middle Ages. In the intervening period the Greeks had approached the subject with sanity and had endeavoured to shed the study of disease of its evil spirit aspect. All their efforts until Alexandrian times were greatly frustrated because post-mortem examination of the human body was taboo. However, the work of the Hippocratic school, of Aristotle and of Galen, had had a tremendous and lasting influence for good on medicine.

Medicine's New Birth

Landmarks of medical advancement were introduced on the anatomical side by the Italian school as represented by Vesalius, and on the physiological side by Harvey, who gave the first classical demonstration of the possibilities of acquiring knowledge by the experimental method. Before, however, the experimental study of disease could really be set going, three things were wanted: (1) a knowledge of the natural history of disease; (2) a knowledge of the anatomy of diseased and healthy tissues and organs; (3) increased knowledge of chemistry and physics and the development of instruments of observation—for example, the microscope, stethoscope, etc. By the time of Pasteur the field was set for development and intensive study. Pasteur's work on enzyme action immediately opened up a new chapter of knowledge and led to the work of Lister on antiseptics and of Koch on bacterial disease in general, with the ultimate isolation of the bacilli responsible for anthrax, tuberculosis, diphtheria, typhoid fever, etc.

In the present century medical research had become more and more intense, with the result that discoveries affecting the diagnosis, prevention, and treatment of disease were coming forward almost too rapidly to be grasped and certainly too rapidly for the administrative officer to extend to preventive medicine. This spate in medical research had been increased by the setting up of bodies to aid and organize investigations in many countries. In this country the Medical Research Council was initiated in 1913, and, besides using its own public funds, it had had the privilege of working in close association with the efforts of private benefactors such as the Lister Institute of Preventive Medicine, founded by Lord Iveagh, the Rockefeller Foundation, and the trusts formed by Sir Otto Beit and Sir Halley Stewart.

Practical Applications of New Knowledge

On the administrative side the greatly increased activities of the Ministry of Health and local health authorities, as seen, for instance, in the foundation of ante-natal clinics, child welfare centres, and centres for the treatment of tuberculosis and venereal disease, had resulted in the application of new knowledge acquired by research to the practical problems of health. We had with a vengeance adopted the Greek view that a healthy mind in a healthy body is the greatest asset of the State.

Dr. Mellanby gave some results showing the effect of advancement in medical science on mortality rates. The infant mortality rate in the period 1896–1900 was 156 per 1,000 births registered; in 1934 it was fifty-nine. The mortality rate of men between 45 and 55 years of age was 20.3 per 1,000 males in the period 1870–75; in the period 1926–30 it was 11.7. The death rate from tuberculosis came down from 3,478 per 1,000,000 in the period 1851–60 to 740 per 1,000,000 in 1934. The death rate from whooping-cough decreased from 510 per 1,000,000 in the period 1871–80 to fifty-one per 1,000,000 in 1934; in the case of measles from 380 per 1,000,000 to ninety-three per 1,000,000; in the case of typhoid fever from 320 to four per 1,000,000.

Progress in Three Fields

Progress in medical science had tended in recent years to centre round three types of knowledge, affecting:

1. *Problems of infection*—protozoal, bacterial and virus—and their control by raising the immunity. In this way such diseases as small-pox, measles, diphtheria, meningitis, and scarlet fever had been influenced. As an example some recent results of Dr. Gunn, working for the London County Council, were referred to. In a group of 399 children treated by immune serum not one had died of measles, whereas in a control group the death rate was 5 per cent.

2. *Diseases due to abnormality of internal secretion*, such as diabetes, pernicious anaemia, Addison's disease, myxoedema, cretinism and simple goitre, tetany, and osteitis fibrosa cystica. As an example reference was made to the latest results obtained in the treatment of pernicious anaemia by the pure or nearly pure anti-anaemic principle of liver as recently isolated by Dakin and West. As little as 0.2 gram injected once weekly has a remarkable curative effect on this otherwise deadly disease.

3. *Nutritional Disease*.—The advancement in knowledge in this case had been phenomenal during the past twenty years, and when the new teachings were put into general practice the results on the health of the community would be as spectacular as had been the effects of improved sanitation and cleanliness. Dr. Mellanby illustrated this subject by showing how discoveries leading to the cause, prevention, and cure of rickets had been obtained. He also dealt with the problem of defective teeth and said that dental decay would remain a scourge in this country unless methods were adopted of feeding infants and children on diets which would produce perfectly formed instead of the present imperfectly formed teeth. He described the beneficial effect of such substances as abundant milk, egg-yolk, fish, and animal fats on dental structure as compared with the harmful effect of cereals such as oatmeal, flour, and other similar substances unless balanced by sufficient milk.

There seemed to be no limit to the acquisition of knowledge of the body in both health and disease if the present methods of experimental research were allowed to continue, and speculation without experiment was kept in submission.

CHILD WELFARE CONFERENCE

A conference under the joint auspices of the Invalid Children's Aid Association and the Central Council for the Care of Cripples was held at Drapers' Hall, London, on November 7th and 8th, when the chief subjects of discussion were preventive measures against infectious diseases and the amelioration of the after-effects of accidents. It was opened by Sir KINGSLEY WOOD, Minister of Health, who addressed himself particularly to the problem of crippledom. The question of fractures, he said, had been the subject of a valuable report recently issued by the British Medical Association, to which his predecessor, Sir Hilton Young, had already drawn the attention of local authorities. The Ministry welcomed particularly the proposals for organizing "fracture units," and suggested that local authorities should consult with the voluntary hospitals to ensure as close co-ordination as possible of hospital beds, out-patient departments, and clinics. Meanwhile the Home Secretary and he had decided to appoint an interdepartmental committee to inquire into the present arrangements for restoring the working capacity of persons injured in accidents.

Immunization

Sir JOHN BROADBENT opened a discussion with a short summary of the history and researches on immunization in diphtheria and scarlet fever. Immunization of the community against diphtheria was a practicable proposition, but for its success it was essential that it should be carried out on children at an early age, preferably from 1 to 4 years, and that a large proportion of the child population should be immunized. The immunization of the general public against scarlet fever, for reasons which he explained, was not as easy a proposition, and in the present state of knowledge not a project to be lightly undertaken. Surgeon Captain S. F. DUDLEY (Deputy Medical Director of the Navy) said that when, seven years ago, it was decided to adopt inoculation against diphtheria in a boys' school the parents of about a thousand boys were asked for their consent, and only seven objected, showing that among this class of people, mostly retired naval ratings, there was a willingness to leave this matter to the judgement of the medical officers. The result of the active immunization of this school was highly satisfactory. Since that time there had been only forty-three cases of diphtheria in the school, and nearly all were mild "sore throats," not recognizable as diphtheria apart from bacteriological examination. Dr. J. ALISON GLOVER of the Ministry of Health dealt with preventive measures to be taken in an outbreak of scarlet fever, and made a special point that active immunization, if it was to be used to the best advantage, should be carried out in a non-epidemic period. Passive immunization was rarely suitable for institutional use, and had certain disadvantages. Dr. MATTHEW BURN described the work of diphtheria immunization in Birmingham, which started in 1925. In the ten-year period there had been some 10,000 cases and 630 deaths among children under 15 who had not been inoculated, and only twenty-nine mild cases and no deaths among inoculated children. Dr. W. J. PEARSON of University College Hospital discussed some of the sequelae of measles and whooping-cough.

After-effects of Accidents

On the second day Mr. H. S. SOUTTAR took the chair at a discussion on the special problem of the child in connexion with street accidents. The dimensions of the problem were given by Colonel J. A. A. PICKARD, secretary of the National Safety First Association, who said that in 1933, of the deaths of 75,000 children in this country 3,665 were attributable to accident, and of the accidents 1,474 were concerned with transport. Dr. H. C. CAMERON of Guy's Hospital spoke of the nervous trauma in children following accidents, due less to anything that had happened to themselves than to the nervousness and anxiety which they saw reflected in the adults who attended to them. Those who had to do with the emergency of accident should be very careful not to convey to the children a sense of their own fear. Mr. S. A. S. MALKIN, surgeon-in-charge of Harlow Wood Orthopaedic Hospital and honorary secretary of the Fractures Committee of the British Medical Association, discussed briefly the findings of the report of that committee, in particular the need for organization whereby the injured person would be under the same supervision continuously until final discharge. He spoke on the need for co-operation between cottage, general, and orthopaedic hospitals. The best method of linking these institutions would be to give the surgeon who was in charge of the fractures service a consulting status among these co-operating hospitals, and to appoint to their staffs assistants or deputies as needed.

Dr. ELIZABETH CASSON, medical director of the Dorset House School of Occupational Therapy, gave a short address on the principles on which occupational therapy was based, and mentioned the course of training and the openings for those who desired to take it up professionally. Mr. E. C. KNY spoke of the training of cripples for industrial occupations of a suitable nature. Other speakers described rehabilitation schemes in their areas, Dr. GEORGE MACFEAT mentioning the Lanarkshire scheme and Dr. C. D. STALLYBRASS the Liverpool one. Dr. GREENWOOD WILSON of Cardiff said that the publication at the appropriate moment of the report of the Fractures Committee of the British Medical Association led to a scheme on the lines indicated being set up to cover not only Cardiff but the neighbouring districts of South Wales and Monmouthshire.

Mr. SOUTTAR, in closing the meeting, urged every worker interested in the problem to obtain a copy of the Fractures Committee's report. He also referred to the important advances made in orthopaedic surgery. On his recent visit to Australia he touched at Singapore, where he was shown two men who, four and six weeks previously, had sustained a fracture of the spine. Thanks to modern orthopaedic treatment, they had so far recovered that he was able to see both of them jump from their beds on to the floor on their feet—the most magnificent demonstration of orthopaedic methods he had ever seen.

England and Wales

Treatment of Tuberculosis in Lancashire

The place of the residential institution in the treatment of pulmonary tuberculosis is discussed by Dr. G. Lissant Cox in his annual report for 1934 as central tuberculosis officer of the Lancashire County Council. Residential treatment is the most expensive part of a tuberculosis scheme, and great care is taken in the first place to ensure accurate diagnosis. A thorough clinical examination at the dispensary, and especially the use there of a good *x*-ray plant, renders it certain that only cases of definite tuberculosis are placed on the register and afforded treatment. This saves much money by reducing the number of beds required for the treatment of patients. Dr. Cox believes that tuberculosis institutions for pulmonary disease should treat on one and the same site the good, the bad, and the intermediate case, often for a long time. To get rid of chronic and advanced cases does not help in the prevention and treatment of tuberculosis as a whole. Experience has shown that by the use of *x* rays and minor collapse therapy in tuberculosis institutions (not too big, situated near the patients' homes, superintended or attended by the tuberculosis officer, and taking all types of pulmonary cases) prevention and treatment go hand in hand, and the title given to the institution, whether hospital or sanatorium, is of little importance. Dr. Cox groups patients up to the age of 15 in three categories: children with tubercle bacilli in the sputum (indicating the adult type of infection) should, he thinks, be provided with separate accommodation at institutions for adult pulmonary cases; those with negative or no sputum should be treated at sanatorium schools; and children with indefinite symptoms, generally known as the pre-tuberculous type, should

attend open-air schools provided by the local education authority. As regards duration of treatment, Dr. Cox states that the following principles have been adopted. (1) Patients who are responding to institutional treatment are given a prolonged stay (six months or over) so long as there is a likelihood of the disease becoming quiescent. For such patients to return home and to work before attaining quiescence is uneconomical because of the danger of a breakdown and all the good of past institutional treatment being wasted. (2) Patients, particularly the young adult group (aged 15 to 25), who have been given special forms of treatment such as artificial pneumothorax, phrenicectomy, thoracoplasty, and sanocrysin, are allowed a sufficient stay—up to six months, possibly—to show progress in response to treatment, and they are retained for as long as twelve months or longer if their condition warrants this. Those who have received artificial pneumothorax attend at the dispensaries for a continuation of the treatment. (3) Patients whose sputum has never been positive and who are not likely to make further progress or to require special treatment are allowed to return home at the end of two or three months' treatment. (4) Patients with positive sputum who are not likely to make further progress and whose home conditions are reasonably satisfactory are allowed to return home at the end of two or three months' treatment. When making recommendations for institutional treatment, tuberculosis officers bear in mind the questions: Is such treatment required to improve the patient's health? Is such treatment desirable to secure nursing care which could not otherwise be obtained at home? and Is it necessary to prescribe this treatment in order to prevent the spread of infection? Elsewhere in the report Dr. Lissant Cox states that the death rate in 1934 (0.46 per 1,000 of the population) was the lowest recorded for the county, and below the rate (0.63) for England and Wales.

North of England Ophthalmological Society

The twenty-first anniversary meeting of the North of England Ophthalmological Society, held in Manchester (writes a correspondent), was an unqualified success. This was due to the indefatigable efforts of Mr. Percival Hay and to the unfailing hospitality of the North. Representatives of the several ophthalmological bodies attended, including one from the Ophthalmic Committee of the British Medical Association. The meeting opened at 10.30 a.m. at the Royal Infirmary with a most interesting address by Mr. Geoffrey Jefferson on "Alterations in the Optic Foramina in Intracranial Lesions." Mr. Hay then showed a film of the recent expedition of the North of England Ophthalmological Society on the Continent; he was followed by Dr. F. R. Ferguson, who gave an exhaustive account of the causes of migraine as seen from the physician's point of view. In the afternoon there was gathered together a collection of clinical cases surprisingly alike in number and variety. After tea in the nurses' dining room the cases were discussed. This ended the serious business of the day, except for those who later were to make speeches at the excellent and well-attended dinner given at the Clarendon Club. The president, Mr. A. T. Paterson, must be congratulated upon the skill with which he handled a heavy day's business, so that everything worked smoothly and to time. It was, in short, a happy, genial, and instructive meeting, at which we from the South made many new and valuable friendships.

Maternal Mortality in Blackburn

During the year 1934 there were twenty-two deaths in association with pregnancy in Blackburn; the total maternal mortality rate was 5.95 per 1,000 births and stillbirths, the rate in respect of cases in which death was directly due to childbirth being 4.63 per 1,000. The death rate from sepsis was 1.98 per 1,000, and that from other causes directly due to child-bearing was 2.64. In a careful survey of the services provided by the corporation, Dr. Thierens, medical officer of health for the borough, could detect only one obvious deficiency—namely, that no obstetric consultant was available for the assistance of private practitioners; he hopes that a suitable appointment may be made before long. He considers that many of the deaths associated with pregnancy might be prevented thereby, but he insists that some preventable deaths are due neither to inefficient midwifery nor to lack of facilities, but to the failure of the mother to avail herself of the latter. He believes that approximately 10 per cent. of the deaths which have occurred in Blackburn during the past six years might have been prevented had the mother appreciated her own obligations. Five of the deaths from toxaemia were attributable in three cases to a complete absence of ante-natal care, and in two to the mother neglecting the advice of the ante-natal attendant. Another avoidable death followed an illegal and instrumental induction of abortion. Dr. Thierens remarks that there is no evidence to show that such instrumental termination of pregnancy is prevalent in Blackburn, and he believes it has become less common in the last few years, but the self-administration of abortifacients seems to be increasing. He is impressed by the relatively high proportion of mothers who have died from conditions not directly attributable to child-bearing but to pre-existing morbid conditions. Of fifty-seven deaths investigated nineteen (33 per cent.) were due to such causes.

Small-pox in England and Wales

The September issue of the *Bulletin of the International Office of Public Health* contains the following information presented to the office by Dr. M. T. Morgan of the Ministry of Health. In 1931 variola minor, of which there were 5,664 cases with nine deaths (1.59 per 1,000), was prevalent in the Midlands and South-East England, including London, and in South Wales. In 1932 more than 70 per cent. of the cases occurred in the home counties and in London. In the first quarter the county of Sussex was affected, but the epidemic was confined to a single region, where there were only twenty-one cases. In 1933 variola minor was almost confined to London, only a few cases being observed in Essex, Middlesex, and Surrey. Two cases were also notified in the sanitary district of the Port of Plymouth and one in that of Liverpool. During these three years small-pox always presented the mild type of variola minor, but in the first quarter of 1934 an epidemic of variola major occurred at Blackburn, where there were twenty-six cases with four deaths. The infection had probably been introduced in cotton imported from abroad, which had been handled by the first patient. During the four years 1931–4 twenty-one cases of post-vaccinial encephalitis were reported to the Ministry of Health, the distribution and mortality being as follows: 1931, seven cases with four deaths; 1932, two cases both recovered; 1933, seven cases with one death; 1934, five cases with four deaths. Home treatment of variola minor was adopted in 365 out of 967 cases at Leicester with satisfactory results.

International Congress of Physical Medicine, London, May, 1936

The sixth International Congress of Physical Medicine will meet in London from May 12th to 16th. This will be the first occasion upon which the congress has met in Great Britain. The decision recognizes the high standing and achievements of treatment by physical methods in Great Britain and Ireland. Foreign members have expressed their cordial approval of this change from a Continental venue and their intention to assist by their presence and active participation in the discussions. Lord Horder has accepted the office of president of the British section of the congress. Sir Robert Stanton Woods is chairman of the executive committee; Sir Henry Gauvain, chairman of the general committee; Dr. Albert Eidinow, honorary secretary; and Dr. Alexander Cawadias, honorary assistant secretary. Lord Horder will be supported by an influential body of vice-presidents and members of the executive and general committees of the British branch. Medical men who wish to attend the congress are requested to communicate with the honorary secretary, Dr. Eidinow, 4, Upper Wimpole Street, London, W.1. The congress fee has been fixed at two guineas for each member.

Ireland

Ulster Medical Society

At the opening meeting of the new session Dr. S. R. Hunter invested his successor, Dr. Foster Coates, with the presidential chain of office and handed over to his custody the Sinclair Loring Cup. In the course of his remarks Dr. Hunter expressed appreciation of the help he had received from Fellows and members during what had proved to be a very pleasant year of office, and wished Dr. Coates a most successful term as president. Dr. Coates, in reply, thanked the Fellows and members for electing him to this honoured position, and promised to endeavour to uphold the success of the society. He made fitting reference to the loss sustained in the deaths of several Fellows and members. Among these were three who, in the normal expectation of life, had many years of useful work before them—namely, Dr. J. C. Loughridge, Dr. S. E. Picken, and Dr. W. S. Gibson. Dr. Coates then gave his presidential address on "The Importance of Vitamins in Dietetics." He dealt with a comprehensive theme in a lucid and interesting manner which won the appreciation of his large audience. He traced the history of these accessory substances from the first suspicions of their presence, through clinical proof as a result of clinical experiments, to the rapid progress of knowledge which accrued during the immediate post-war years. Dr. Coates dealt with the eventual elucidation of the mystery of the fat-soluble vitamins contained in cod-liver oil and the modern belief as to precise function in human metabolism. The identification of vitamin B and its differentiation into the various components in relation to pellagra and beri-beri were considered, and some general principles of a practical nature as to the sources of the various vitamins and how deficiencies in diet arose were expounded. Professor R. J. Johnstone proposed a well-deserved vote of thanks to the president, which was seconded by Sir Thomas Houston and adopted with acclamation.

Laboratory Research in Ireland

The meeting of the Section of Pathology of the Royal Academy of Medicine in Ireland on October 25th was devoted to an examination of the position of laboratory research in that country. The president, Dr. W. R. O'Farrell, in his inaugural address, announced that funds had now become available for routine and clinical laboratory research, and that a scheme was in process of development. In addition to the usual lines of investigation, he suggested that a survey in the Free State of toxic goitre and of the geographical distribution of human and bovine types of tubercle bacilli would have valuable results. Professor J. W. Bigger agreed that before long there would be much better organization of research, and hoped that the workers would be adequately paid. Professor W. D. O'Kelly added that there should always be an incentive to work for a higher salary. He thought that one of the great drawbacks to research was that a man might do good work and yet be unable to get it published. Even research journals frequently refused to publish articles which recorded merely negative results. Such journals were always on the look out for such work as implied dramatic success, and were not always willing to record ordinary routine work, even of practical value. Dr. W. R. F. Collis pointed out that in Ireland there was as yet no research library and no central information bureau, both of which were absolutely essential. Laboratory assistants were at present underpaid; an examination should be instituted for these assistants and diplomas be awarded. He hoped that before long research in Ireland would be developed in such a way as to provide whole-time units. There should be a team, including a whole-time pathologist and a whole-time clinician, working in conjunction. Dr. C. J. McSweeney thought that the most urgent problem at present was investigation of puerperal sepsis. There was much puerperal infection in Dublin, and plenty of material for investigation. Gastro-enteritis in children and the early stages of rheumatism in childhood were other subjects demanding investigation. He hoped that the research scheme would attract keen young Irish graduates. Other speakers referred to the lack of laboratory accommodation in Dublin. More up-to-date equipment was necessary, and there should be better co-operation between clinicians and laboratory workers. Funds should be available for the routine following up of patients as well as for the investigation of rare cases. Hormone researches promised well, but there were difficulties in Dublin owing to a shortage of cases which could be treated by new drugs.

Reports of Societies

PARALYTIC ILEUS AFTER ACUTE APPENDICITIS

Instead of delivering a presidential address before the Section of Surgery of the Royal Society of Medicine on November 6th, Mr. SAMPSON HANDLEY opened a discussion on "Paralytic Ileus after Acute Appendicitis."

This condition, he said, was not a common one, and the experience of one individual was necessarily limited. His choice of subject had been determined by his belief that these very fatal cases were amenable to timely and energetic treatment based upon a study of the pathology of peritonitis. He believed also that jejunostomy was not really a solution of the problem. As a surgeon's seniority increased his experience of emergency surgery tended to diminish, and he had little to add to his clinical records published in two Hunterian Lectures in 1915. In all the cases on which he had operated medical measures had been perseveringly tried; he had never operated on a prophylactic basis. In all cases, before the onset of obstruction, the peritonitis had been dealt with according to the gospel of Murphy—removal of appendix, pelvic drainage, Fowler position, and free administration of continuous rectal saline. General peritonitis was rarely universal, even at the time of death. Man had paid a high price for his adoption of the upright position by his liability to hernia and visceroptosis, but he had the advantage that his peritoneal cavity drained to a low point in both the recumbent and the erect position. Peritonitis began in the pelvis even when the septic focus, say a pinhole opening in the duodenum, was situated high in the abdomen. The flood-like invasion of the peritoneal cavity from below upwards had the consequence that the stomach, jejunum, transverse colon, and of course the liver and duodenum, remained uninflamed and unparalysed practically until the patient was moribund. Properly utilized, this fact was the key to successful treatment. These statements were based mainly upon direct inspection of the upper abdomen during a large number of laparotomies, but he had verified them post mortem in more than one case.

The clinical stages of peritonitis might be divided into three: pelvic peritonitis, hypogastric peritonitis, and the hopeless "clinical picture" stage of general peritonitis. It was the second stage to which he desired to draw attention, for the patient's life might depend upon its prompt recognition. On palpation a resonant rounded swelling would be found, almost as definite in its upper outline as the distended bladder, in the hypogastric region. It was formed by distended small intestine coils more or less glued together. Very soon the supra-umbilical region, though remaining soft and retaining some movement, would begin to share the distension of the lower abdomen, and the stretching of its muscles might be mistaken for genuine rigidity. The hypogastric stage was short, lasting perhaps twenty-four hours. In the terminal stage the signs were those of general peritonitis of the textbooks, and of these nothing need be said. In cases of ileus duplex the main paralysis and obstruction occurred at two points where the bowel was bathed in the purulent fluid which ran down into the pelvis. Mr. Sampson Handley showed a short table giving the results of his operative treatment of ileus duplex. The most successful treatment had been by ileocolostomy combined with caecostomy. Of three cases so treated all recovered.

while of ten patients treated by other methods seven died, and of the ten, six were treated by ileocolostomy alone (two recoveries, four deaths). If intestinal obstruction first came on in the hypogastric stage of peritonitis the operative problem was different, for local and less definite tracts of both the large and the small intestine, were now involved in the paralysis. Here he described how he carried out an anastomosis of an extended coil of jejunum to the transverse colon. This operation he had performed five times, and four of the patients made complete recoveries; the fifth recovered from the intestinal obstruction only to die a month later of pyaemia. He hoped to persuade some of his colleagues that the short-circuit operation need not be feared even in these terribly ill patients. A late sequel of the short-circuit operation must be mentioned. In the first successful case of jejuno-transverse colostomy which he performed the patient died eight years after the operation with symptoms diagnosed as pernicious anaemia. Another case, again eight years after operation, developed signs of pernicious anaemia, but fortunately he saw that patient and undid the lateral anastomosis, whereupon he made a rapid and complete recovery from his pernicious anaemia. Physiologists knew that in animals a lateral anastomosis might ultimately induce fatal anaemia in some way at present unexplained. The possibility of a secondary operation seven or eight years after the peritonitis was a serious drawback, but not too high a price to pay for recovery from a condition otherwise fatal. He submitted that his cases incidentally supplied a proof, which could not be upset by any number of animal experiments, that in man death from suppurative peritonitis was nearly always due to intestinal obstruction, and, furthermore, that the obstruction was not universal, but was confined to certain segments of the intestine and amenable to appropriate treatment.

Enterostomy was not a rational operation in cases in which there was first an obstruction of the lower part of the small intestine and secondly an obstruction of the lower part of the large intestine, except in cases where the obstruction of the large intestine was likely to pass off spontaneously. Enterostomy only drained the small intestine. Paralysis of the pelvic colon generally prevented relief per anum and the patient died—more slowly, it was true—in spite of the enterostomy, by toxic absorption from a distended large intestine. Most of the people who had had great success with jejunostomy or enterostomy had used it prophylactically. Recent experience at the Mayo Clinic seemed definitely unfavourable to enterostomy in acute obstruction. In the severest forms of peritoneal infection he was convinced that jejunostomy or enterostomy was irrational, though he admitted that it was often performed too late to give it a chance. It failed to relieve the large intestine, which was obstructed as well as the small, and it was useless to deal with only one of two conditions both of which were lethal. When it occasionally succeeded in these cases it was because the obstruction of the large intestine was later in its onset, less constant, and more quickly recoverable than the obstruction of the small intestine. The uniformity of his own results, although he admitted the smallness of the series, entitled him to urge a trial of the methods he advocated as soon as the hypogastric stage of peritonitis was reached, and before the patient was moribund, and that interval was short.

General Discussion

Mr. PHILIP TURNER said that he had been very unfavourably impressed with operative measures in paralytic ileus. In speaking of ileus generally it was necessary to bear in mind that there was more than one variety. There was pre-operative ileus—that is, where paralytic ileus was present before operation, a point of very considerable importance. There was ileus duplex, which Mr. Sampson Handley had described. There was also another variety, post-operative ileus. In this last condition he had done a fair number of enterostomies; he was afraid he could not give absolute statistics about results, but the cases were almost invariably fatal. It would be interesting to hear what others had to say about *B. welchii* serum; at first he did not believe in it at all, but he now believed that it was often a considerable success. In the great majority of cases he relied upon medical measures. In some cases of fairly early ileus he had found the treacle enema to be of great help. Three or four ounces of treacle were used—not refined golden syrup, but the good old treacle with which they were familiar.

Professor G. GREY TURNER said that he had always remembered and been very much guided by the work of the late Mr. Barker of University College Hospital, who drew attention to the extreme importance of dealing with obstruction and of excluding a large portion of the involved intestine. He was not quite clear whether Mr. Handley carried out the operation he had advocated as a primary operation when confronted with one of these cases, or as a secondary operation when the appendix had already been removed.

Mr. SAMPSON HANDLEY said that they were nearly all secondary operations.

Professor GREY TURNER went on to say that in many cases of the type Mr. Handley had described he thought intervention took place rather too soon and too often. These cases were all desperate, and it was very difficult to know when it was proper to intervene or whether they should be left alone in the hope that perhaps they would form a localized abscess which could be dealt with or would get well as a result of other measures employed. Was intervention such as Mr. Handley had spoken about going to make the essential difference in the mass of cases? Would the mortality from acute appendicitis as a whole be reduced, or would only a case be saved here and there? The difficulty always was to know just when to intervene. Often a patient in this condition would develop a faecal fistula and immediately begin to get well. Enterostomy was a procedure which one would naturally hesitate to employ, but in desperate cases it had occasionally saved life. A point to be borne in mind was that although this procedure might not infrequently be successful in the hands of surgeons who had given these conditions their particular interest, it might be far from successful in the hands of surgeons in general. Murphy, just before his death, wrote some forcible articles about appendicitis, saying that he thought it essential that about every five years the surgeon should go over his experience of appendicitis and reconsider surgical methods in all stages. The need of early treatment of appendicitis and early treatment by operation should be preached in the profession. Would it not be wiser to be content to do the operation in stages, first merely making a small incision, employing a local anaesthetic, and putting in drainage of the pelvis, and at a second stage removing the appendix? Cases complicated by ileus required great experience and superlative judgement, and even with these available the great majority would die.

Mr. VICTOR BONNEY, taking up a historical reference which Mr. Handley had made, said that it was true that in 1910 he advised jejunostomy, but he did so for a condition totally different from so-called paralytic ileus. Two conditions had been hopelessly muddled up. He had recommended jejunostomy for those cases of functional intestinal obstruction which came on after any abdominal operation and were not dependent on inflammation of the peritoneum. Some such functional obstruction occurred after prostatectomy; he had seen it twice as a spontaneous occurrence in pregnancy, and it was well known as a terminal event in pneumonia. Generally speaking, the area had been traumatized by operation, or by inflammation resulting from other illness. In this class of case obstruction started at the top, the stomach being the first stage. He first tried opening the large intestine, and then the ileum, without success, and then he opened the jejunum as high up as he could, and was rewarded. But that was a totally different class of case from the form of so-called paralytic ileus that Mr. Handley had described that evening, with a mass of intestines surrounded by an inflammatory exudate, and partaking in that exudate themselves, with the mesentery and intestinal wall oedematous. It was a pity that the term "paralytic ileus" should be used indiscriminately for inflammatory

cases—where there was a paralysis, it was true, but a paralysis limited to the area of the inflammation—and that these should be mixed with the other class of case, much more abstruse, coming from above downwards, and without any peritonitis to account for them at all. He wished to see a marked distinction drawn between the two classes of case. The class just described he would call "functional obstruction," and then another term was wanted for what Mr. Handley had described—perhaps "inflammatory ileus," for although he did not know what ileus was, it was a well-christened term, and fairly descriptive if qualified by "inflammatory." Functional obstruction could follow any operation in the neighbourhood of the peritoneum; it could follow appendicitis, and there must be certain cases in which both the functional obstruction and the peritonitic or inflammatory ileus, the result of appendicitis, were found concurrently, and the treatment for the one was not necessarily the treatment for the other. In the case of peritonitic ileus he questioned whether the death could fairly be said to result from obstruction. There was an enormous area of acute streptococcal inflammation. That the paralysis of the gut played a part in the fatal issue he did not doubt, but he could not disregard that large area of infection.

Mr. S. G. BARLING said that more and more he tended towards medical rather than surgical measures in these severe cases. With regard to the spread of the peritonitis, while one recognized that cases of spread such as Mr. Handley had described did occur, he would have thought the tendency of the peritonitis to be more erratic and diverse in its manifestations, so that it would be difficult to say at the moment where exactly the obstruction occurred. The ileus was apt to be a progressive condition. It was a vicious circle—distension leading to kinking and interference with circulation, kinking leading to more obstruction, and interference with circulation leading to an alteration of the process of diffusion of gases, and therefore more distension. Sometimes jejunostomy cut that vicious circle. Many of these patients died of streptococcal septicaemia, though ileus played a part in denuding the patient of fluid and sapping his strength. Medical measures should not be scorned. He himself was a strong supporter of the brine enema—at least six tablespoonfuls piled up with salt in a pint of water.

Mr. TURNER WARWICK described the routine treatment of a case in which he had collaborated with Mr. Sampson Handley. After the appendix was removed upper abdominal distension occurred. As there was an element of infection, consisting of streptococci, *B. coli*, and, he took it, anaerobic infection, he used *B. welchii* serum, though admittedly it did not cover the group entirely. He gave prostigmin during the day, and possibly pituitrin, at three-hourly intervals. If the patient was vomiting he used the indwelling tube, through which he could employ constant suction; this was quite easily borne, and the patient did not have to wake up in the middle of the night to vomit as he would otherwise have done. In the particular case of which he was speaking, what appeared to be inflammatory ileus developed, but thanks to gastric suction and lavage the patient was kept in fairly comfortable condition. Mr. Handley then carried out the operation he had described of ileo-transverse colostomy and drained the caecum, and the patient made a dramatic recovery.

In some further discussion Mr. W. S. DICKIE said that he was glad some stress had been laid on the washing out of the stomach, but he did not like the indwelling tube at all. Mr. W. E. TANNER asked whether Mr. Handley ever considered the undoing of the lateral anastomosis and what he would expect to see, Mr. HANDLEY replying that he thought the intestine recovered itself comparatively quickly. Mr. A. DICKSON WRIGHT said that he had taken two cases with ileus up to the operating theatre and given spinal anaesthesia, and in both of them the bowels acted on the table. With regard to rest or stimulation as routine treatment, he preferred to give rest steadily for two days, allowing the patient to get well by himself if possible. For stimulation he used radiant heat or infra-red on the abdomen. He also tried 100 c.cm. of 10 per cent. saline as a purgative. He had not found any benefit from intravenous injections of acetylcholine. If these methods failed he tried spinal anaesthesia, which would induce any intestine to contract that could possibly do so. He always countered any fall of blood pressure by giving 1/3 grain of ephedrine just before he gave his "spinal." With ephedrine given previously there was no danger of a fall. Mr. DONALD said that the most common case of severe ileus was not associated with much pus, but with local fibrinous exudate. Any recovery, whether spontaneous or due to operation, seemed always to occur at the end of the first week or the beginning of the second.

Mr. SAMPSON HANDLEY, in a brief reply, said that his results from ileocolostomy alone were very bad, but as soon as caecostomy was added the results were good.

USE OF DRUGS OF THE CAMPHOR AND CORAMINE TYPE

In the Section of Therapeutics and Pharmacology of the Royal Society of Medicine on November 13th, with Dr. DOROTHY HARE in the chair, Professor E. C. DODDS opened a discussion on the pharmacological action and clinical use of drugs with a camphor-like and coramine-like action.

Professor Dodds said that the search for a stimulant of respiratory function had been the subject of experimentation for a long time. Many of the stimulants popular years ago had completely dropped out of use. The present discussion was confined to two groups of compounds: those related to camphor and those related to pyridine. As for camphor, one of the main difficulties in studying it either pharmacologically or therapeutically was its marked insolubility. Its main action, which at the best could only be very brief, was on the circulatory system, but the response was inconstant and doubtful, and the same applied to its effect on respiration. Experienced pharmacologists would find it impossible to support the claim of clinicians that camphor is a powerful stimulant. An attempt had been made to overcome the insolubility by the use of sodium camphor sulphonate, but even with this compound the results were very disappointing.

Compounds of the pyridine group of circulatory stimulants were familiar under the names of nicotine, lobeline, and sparteine, all of which had a pyridine nucleus. The formula of coramine, the fourth compound of this series, was β-carboxylic acid diethylamide of pyridine. From the quantitative point of view coramine had a more powerful action than the other three. The injection of quantities of 50 mg. into a rabbit produced marked changes in respiration. Samson Wright had shown that nicotine and lobeline in small quantities appeared to act peripherally, but in larger doses acted by direct stimulation of the respiratory centre; the coramine compound acted both centrally and peripherally, but mainly centrally. Unlike camphor, coramine exhibited very powerful pharmacological effects in small doses by mouth or intravenously. If given in larger doses an animal showed definite evidence of cerebral stimulation, and still larger doses would produce convulsions. It was remarkable what severe convulsions could be produced in animals, followed by recovery; the toxicity of this type of compound appeared to be very much lower than might be judged from the symptoms of overdosage. It could be proved that the action on the heart was entirely through the central nervous system, and therefore it was unfair in every way to compare the drugs with digitalis. On the clinical side drugs of this type had been used extensively in conditions associated with shock and depressed circulatory and respiratory state, diabetic coma, post-anaesthetic collapse, and, under certain conditions, pneumonia. The only experience he had personally was in patients with diabetic coma, and here, even when the pulse was imperceptible at the wrist, large injections produced a change of colour, a returning pulse, and obvious improvement.

Dr. R. A. YOUNG spoke as one who had used camphor empirically when pharmacologists said that one was

wasting one's time and the patient's money in giving it. He had given camphor in oily solution in considerable doses in conditions like pneumonia, and had thought that it did good. He was still disappointed at the faintness of the praise which had been given to camphor from the scientific point of view. Fortunately there was now available the other group of drugs, of which coramine was the best example. Coramine had established itself clinically in his opinion as a very valuable drug, and it was encouraging to learn that there was good scientific basis for that opinion. He had used it for a long time past in pneumonia, chiefly subcutaneously and intramuscularly, but only recently intravenously, and on one or two occasions he had seen very dramatic results. Not long ago a young man was admitted to his ward extremely collapsed with a spontaneous pneumothorax, almost pulseless and quite unconscious. The house-physician injected 5 c.cm. of coramine into the vein, and the result was instantaneous. Within a few seconds of the completion of the injection the patient sat up, not convulsed, his colour improved, and he became conscious. Although very ill for some considerable time afterwards, he eventually recovered. That was not an isolated experience in his work. As to whether the effect was temporary or permanent, he had always thought that the effects continued, particularly in pneumonia. One of the disadvantages of the administration was that sometimes after repeated use for several days the patient became a little intolerant of the needle, and occasionally, even with strict aseptic precautions, there was a considerable area of infiltration, redness, and pain, and possibly suppuration. He had discarded camphor since the introduction of this new group of drugs.

Dr. J. W. TREVAN said that the diethylamides all had the same sort of action on mice ; the main seat of action of these compounds was just above the mid-brain. The difficulty about the whole subject was that these were synthetic compounds, and really nothing was known about the pharmacological action. Sir WALTER LANGDON-BROWN said that his impression had always been that camphor did good. It brought about a temporary improvement which might avail to pull the patient through a crisis. Especially in cases of pneumonia did it sway the balance in favour of the patient. Dr. P. HAMILL said that he still wondered whether in the past it was the camphor that produced the good effect or whether it was the extremely painful cutaneous stimulus produced by the ether in the oil which dissolved the camphor. The injection of the camphorized oil was really quite painful.

Dr. E. C. WARNER said that in big doses camphor had a marked effect. He recalled a man who had swallowed a large dose of camphor liniment in mistake for something else ; it led to a condition of excitement amounting to delirium. But he doubted whether camphor in ordinary pharmacological doses had any action ; of course a dose of ether was a good temporary stimulant. With regard to coramine, he had seen cases of pneumonia where he had felt that it was of value. Recently, also, he had used it in the case of some children who were severely dehydrated as a result of extreme diarrhoea and vomiting, with the circulation very feeble, and he had formed the definite impression that for a half-hour after each dose the circulation inproved ; the improvement did not last much more than half an hour, and therefore, where necessary to continue it, he had given it hourly. Asked by Dr. GEORGE GRAHAM what improvement there was in the blood pressure in pneumonia following the administration of coramine. Dr. Warner said that after 1 to 2 c.cm. given intramuscularly at four-hourly intervals the blood pressure went up by something like 5 mm. in about twenty-four hours ; that related, of course, to patients whose circulation was severely depressed to begin with, whose pressure was, for example, about 110 when it ought to be 140.

Professor F. R. FRASER expressed some astonishment that there were so few in the meeting who were prepared to get up and say that they had really seen these drugs do much good. Professor L. J. WITTS said that he had used coramine once in the case of an elderly woman extremely ill with pneumonia and getting very frequent extrasystoles. He ordered 1 c.cm. of coramine to be given every four hours, and from that point she steadily improved, passing the crisis eighteen hours later and making an uninterrupted recovery. Dr. PHILIP ELLMAN said that he had used coramine frequently in pneumonia, giving it intravenously, and had been led to believe that it was a very valuable drug. Dr. C. W. J. BRASHER said that he had used coramine in the case of chronic alcoholics who had developed bronchopneumonia, and, although he gave the maximum doses suggested, the results were negligible. Dr. W. A. R. THOMSON said that the discussion had centred round pneumonia. He could not help feeling that if coramine was such an excellent respiratory stimulant the clinics and hospitals where it was administered ought to show final results in pneumonia much better than those obtained in hospitals where treatment followed more conservative lines, but he did not gather that that was the case. Possibly coramine gave only a temporary alleviation. Dr. SCHOTT said that he had found coramine of value in one case in which an overdose of somnifaine had been taken. In Continental literature the importance of the drug as an antidote to the barbiturates was stressed.

Dr. DOROTHY HARE said that she had not actually used coramine in diabetic coma, but she imagined that the temporary stimulus to the circulation would be extremely valuable in that condition, in which the circulation seemed almost to come to a standstill, with the low blood pressure and the viscosity of the blood.

CORRESPONDENCE

The number of letters received for publication is so large that we must ask correspondents to make their points briefly and to regard 600 words as the upper limit of length.

R.M.B.F. Christmas Gifts

SIR,—By your kindly permission I appealed to your readers in October for contributions towards our Christmas Gift Fund. I am very grateful to those who have already responded, but the amount received up to date is not sufficient to allow of Christmas gifts being given to more than one-third of our beneficiaries.

The General Election will be over when this letter appears in print, and Christmas is near at hand. May I therefore appeal once more in the hope that contributions will be forwarded to the Honorary Treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, Cavendish Square, London, W.1, lest any of our poor people be disappointed this year. I ask all who have well-being in life to give as generously as possible and without delay, so that gifts may be distributed in time.—I am, etc.,

THOS. BARLOW,
President.

November 12th.

The Quality of Sunlight

SIR,—I read with much interest Dr. Walter P. Kennedy's letter in your issue of November 9th (p. 924) on the quality of sunlight, and can confirm his findings. I have attempted to explain them by my theory of "varying stimuli and varying responses," which, whether it be correct or not, does at any rate afford a sound working hypothesis for the conduct of sun treatment. I attach below references to communications I have made on the subject.

In the average individual there are both diurnal and seasonal variations in response to exposure. It is to the latter that Dr. Kennedy refers. After a prolonged period of exposure to sunlight a point is reached where further exposure is of little effect, but if the character of the stimulus is changed further response is elicited. Dr. Kennedy has observed this in Europeans in Iraq who

transferred to Lebanon, Syria, Egypt, or even Scotland. I make use of this fact at Alton. If a patient has responded well up to a point at Alton, but then hangs fire, I transfer him to Hayling Island, where, with different stimuli, he again progresses and responds; alternatively I give him a course of treatment in the light department. Here the variation of response in pigmentation to different sources of ultra-violet light is most marked. It is least with the mercury vapour lamp, more with the long-flamed impregnated carbon arc, which emits intense ultra-violet radiation, but much more still with the simple carbon arc as used at the Finsen Institute, and which can be tolerated for lengthy exposures by the majority of patients.

I had exceptional opportunities for studying reactions to exposure to sunlight in the B.M.A. World Tour, from which I have just returned, but the space which, in your courtesy, you could permit in a letter, would be inadequate to describe them. I do not believe that the amount of therapeutically valuable ultra-violet radiation available in the Tropics can compare favourably with that in temperate regions. The European permanently resident in the Tropics is seldom very tanned, and never as well tanned as he would be with comparable exposure at home. The chief engineer of the *Marella*, a devotee to sun- and sea-bathing, volunteered the information that after passing Townsville on the way to Singapore the tanning properties of the sunlight very markedly diminished, and I was able to confirm that by sun-bathing at every possible opportunity myself. Though we had perfect weather for sun-bathing almost throughout the journey, no one, as far as I could observe, pigmented as well as they would have done with equal exposure in the South of England in an average summer. Of course, several became markedly bronzed, but those were good pigmenters, and would have done just as well, if not better, at home.

The best conditions for sun-bathing existed in the Arabian and Red Seas, and those were really good and infinitely superior to those at the Equator. To my great regret I did not take an actinometer with me, as the readings would have been of great interest, but even in the Red Sea I doubt whether the readings would have exceeded those I have taken in the summer in the Arctic Circle. Though I do not think we were subject to temperatures comparable to those observed in Iraq, yet temperatures exceeding 100° were frequently recorded. Many sun-bathed all the afternoon, but I heard of no ill effects. I noticed with interest that those to whom excessive exposure to sunlight would be obviously harmful instinctively abstained from exposing themselves.—I am, etc.,

Alton, Hampshire, Nov. 9th. HENRY GAUVAIN.

BIBLIOGRAPHY

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A Doctor's Right to His Name

SIR,—I was greatly interested in the letter written by Dr. Hugh MacLean in your issue of October 19th, and deeply sympathize with him. Ever since I read his original communication in the *British Medical Journal* on his line of treatment of gastric and duodenal inflammatory conditions, I have carried out his suggestions and have had, in many cases, excellent results; in some cases I have had to modify the amount of mag. carb. pond., and I have heard from Dr. MacLean that he fully agrees with me that this may be necessary.

When Dr. Hugh MacLean's prescription was copied from the *Journal* and put on the market by a number of drug manufacturers and was extensively advertised in the Press, I was asked by patients whether they could take these powders as they were sometimes cheaper than the powder dispensed by chemists which was prescribed by me according to Dr. MacLean's prescription. I have always warned my patients that these advertised powders were a "crib" from the original communication to your *Journal*, and that they could not be considered as a "cure-all," as each patient had to be treated according to his or her own special symptoms or degree of trouble.

I feel sure that, if other practitioners would warn their patients against relying on the "Maclean stomach powder" and stick to the original formula, with, if necessary, modifications, they would obviate great disappointment among their patients and help to lessen the great annoyance caused to Dr. Hugh MacLean.—I am, etc.,

Liverpool, Nov. 9th. J. GRAHAM MARTIN, M.D., K.H.P.

X-Ray Treatment and Subacute Bacterial Endocarditis

SIR,—The value of *x*-ray radiation in the treatment of local infections does not seem to have been generally recognized. I had convincing evidence of its efficiency more than thirty years ago.

A little girl cut her forehead in falling against a stone in the garden. The wound, which at first appeared to be trivial, refused to heal. After a few weeks it was freely excised and sutured, but quickly broke down, and in spite of scraping, the application of chloride of zinc, and continuous antiseptic dressing, continued to spread, until, six weeks later, there was a large circular painless ulcer on the forehead of the size of a five-shilling piece. *Staphylococcus aureus* was the only organism found. It was decided to try *x*-ray treatment. A single application was given of about a half-Sabouraud pastille dose. In a fortnight the ulcer was completely and permanently healed. Another similar ulcer healed equally promptly and satisfactorily after a single dose of *x* rays.

A young woman consulted me for a chronic tuberculous ulcer of the neck, which had withstood various kinds of treatment for ten years. I gave her a few mild doses of *x* rays at weekly intervals. In a short time the ulcer was completely and permanently healed.

In my own case an abscess above the elbow following septic infection of a finger from the prick of a needle during an operation showed no response to any treatment, including autogenous vaccine therapy, for more than six weeks. In view of previous experience I insisted on trying *x*-ray treatment. A single half-Sabouraud dose was sufficient. Within a fortnight the abscess was healed and there was no further trouble.

Dr. W. H. D. Webster[1] has given an account of the remarkable effects of mild *x*-ray radiation upon acute, subacute, and chronic local infections. Not only is it effective in the treatment of acute infections of the skin and subcutaneous tissues, such as furunculosis, carbuncle, whitlow, erysipelas, etc., but also in deeper-lying inflammatory conditions, such as acute mastitis, chronic appendix abscess, and renal abscesses. In more chronic infections, such as acne indurata, sycosis, and chronic eczema, the effect is very satisfactory, and chronic sinuses, such as appendicular and ischio-rectal fistulae, have promptly healed after two or three mild *x*-ray applications. The effect on tuberculous adenitis, lupus, and chronic tuberculous ulceration is more generally recognized, but deep-seated chronic or subacute inflammatory lesions, such as salpingitis, parametritis, and chronic mastitis, have also responded satisfactorily, and it is even claimed that some cases of chronic arthritis may derive benefit from *x*-ray radiation.

If *x*-ray radiation has such a remarkable effect in the treatment of so many acute, subacute, and chronic infec-

[1] *British Medical Journal*, 1932, ii, 665.

tions, even when comparatively deep-seated, is there any reason why it should not be given a trial in bacterial endocarditis? There is no disease in which the prognosis is more hopeless, and the treatment more unsatisfactory, than in subacute bacterial endocarditis. Vaccine therapy and intravenous injection of antitoxic and anti-bacterial sera, or chemical agents such as mercurochrome, are equally futile. The cause of their failure appears to be that they cannot come into actual contact with the streptococci, which are entrenched in fibrotic, practically avascular, and semi-necrotic tissue in the cardiac valves and vegetations. This tissue has practically no capillary circulation, and plasma containing antitoxic or bactericidal substances does not percolate through.

It seems to be a reasonable supposition that a few weekly doses of mild irradiation about 30 to 40 per cent. of a skin dose, might have a beneficial effect if a sufficiently early diagnosis is made, before the infection has been widely disseminated by showers of infected emboli. A portable *x*-ray apparatus would be all that would be required, and the treatment could be given in bed without any disturbance or discomfort to the patient. If this treatment is given while the temperature is only slightly febrile, and rigors, petechiae, splenic enlargement, and other symptoms of multiple embolism have not yet made the diagnosis only too clear, there might be some hope of effecting a cure.—I am, etc.,

HERBERT H. BROWN, M.D., F.R.C.S.

Worthing, Nov. 2nd.

Immunization with Alum-precipitated Toxoid

SIR,—I have been very interested to read your leading article and the two papers in your issue of November 9th with regard to the above matter, and I thought it might be of interest to give you particulars of my own experience in the use of alum-precipitated toxoid, which has been as follows:

	Manufacturer			Total
	A	B	C	
Schick-negative after 1 month ...	162	19	3	184
" " " 2 months ...	11	—	—	11
" " " 3 " ...	2	—	—	2
Total Shick-negative	175	19	3	197

The percentage of patients Schick-negative in one month was 93, and in three months, 100. Of the cases treated with two doses of 0.1 c.cm. A.P.T. at one month interval (included above under B) nine were Schick-negative one month after the last injection. (N.B.—No pre-Schick test was done, but all patients were 1 to 3 years old and presumably positive.) Most injections were given subcutaneously, and reactions were approximately 3 to 5 per cent. with different batches. None were serious. —I am, etc.,

A. POWELL,
Medical Officer of Health.

Public Health Department,
Walthamstow, E.17, Nov. 9th.

SIR,—Dr. Haine, in the *Journal* of November 9th, states that, having given 1,160 children one hypodermic injection of alum-precipitated toxoid (Parke Davis or Evans Lescher and Webb preparations), he is entirely satisfied with the small proportion of reactions and the relatively trivial nature of such as did occur. Drs. Naughten, White, and Foley, in the same issue, state that of 130 Schick-positive children injected subcutaneously with 1 c.cm. of Burroughs Wellcome A.P.T., 10 per cent. exhibited diffuse erythema extending around an area of approximately three inches from the site of injection, six cases presented brawny induration with hyperaemia over practically the whole area, and stiffness in joints and local heat,. and that one case presented a minute sterile abscess at the injection site.

Dr. Naughten does not consider that the local reactions shown by twenty out of 130 children in residential institutions warrant apprehension. I am afraid such a large proportion of local reactions would not be regarded without apprehension in Britain by parents of children living at home, and would militate greatly against the success of future diphtheria immunization campaigns. On July 4th I gave twenty Schick-positive children in a residential institution an intramuscular injection of 1 c.cm. Burroughs Wellcome A.P.T. While the local reactions in these children, who were aged 6 to 15, were rather milder than those caused by Dr. Naughten's subcutaneous injections, they were sufficiently severe to make me chary about using this preparation outside of residential institutions. Nineteen of this group were re-Schick-tested on October 26th, and two proved Schick-positive; one of the two gave a very faint reaction.

I understand that Dr. Haine's large series of 1,160 A.P.T. injections with only eight appreciable reactions noticed have all been carried out in the past twelve months, and that diphtheria immunization with other preparations has not been in operation in his districts in earlier years. Now among twenty-three Schick-positive girls aged 7 to 15, injected subcutaneously with Evans A.P.T. (batch 52101), I observed a much larger number of fairly severe reactions than Dr. Haine noticed among the 590 children to whom he gave the same prophylactic. What is the explanation of the discrepancy in our findings? My patients lived in a school where I have carried out Schick testing and T.A.F. diphtheria immunization for three years without appreciable local reactions; the A.P.T. injections were given on February 20th, and I examined the children's arms myself on the 21st, 22nd, 23rd, and 25th, making accurate notes on each date. Dr. Haine's 590 cases attended day schools. Were the arms of nearly all actually inspected daily by a doctor for a few days after the injections? I may say that in my experience the reactions develop within twenty-four hours, and many quite sharp reactions are almost cleared up in four days; daily inspection for the first few days is necessary to give a true picture of the liability to reactions; a single inspection carried out on the fourth or subsequent days would give an entirely false picture. I notice with regret that of the 1,160 children given the A.P.T. injections by Dr. Haine 161 did not have the subsequent Schick test because their parents would not allow them to have a further injection. This is not in keeping with the statement that only eight of the 1,160 exhibited reactions worth noting; moreover, it does not augur well for the ultimate success of the diphtheria immunization campaign in districts where A.P.T. is the first prophylactic to be used. Nineteen of my cases were re-Schick-tested on June 28th—that is, four months after the A.P.T. injection—and four were still Schick-positive.

At another residential school, on March 4th, I gave a subcutaneous injection of 1/2 c.cm. Parke Davis A.P.T. to fourteen Schick-positive boys aged 8 to 10, and of 1 c.cm. of Evans A.P.T. to five boys aged 8 to 11. All nineteen proved Schick-negative when re-Schick-tested on October 11th —that is, after seven months. Though much less severe than the Evans preparation, the Parke Davis A.P.T. caused too much local reaction for me to use it readily outside of residential institutions when such a harmless and efficient prophylactic as T.A.F. is available.

While recognizing the great administrative advantages of a one-shot immunization method, I remain far from convinced that A.P.T. is yet good enough to replace T.A.F. and T.A.M. With regard to the different brands of A.P.T. itself, my limited experience suggests that maximum efficiency does not go hand in hand with maximum liability to cause reactions.—I am, etc.,

WILLIAM G. PATTERSON,
M.D., M.R.C.P., D.P.H.

Weybridge, Nov. 9th.

Anti-scarlatinal Serum in Erysipelas

SIR,—I was interested to see two communications on this subject in the *Journals* of November 2nd and 9th, but also rather surprised, as I considered this treatment to be a routine procedure. To the best of my recollection it was always used when I was a house-surgeon at the Bristol Royal Infirmary in 1930, and it has been my invariable rule in practice to use it in all cases of any severity.

A recent case was that of a woman aged 50 years with erysipelas of the whole face from ear to ear and from the hairline of the forehead to the chin; temperature was 105.8° F. Anti-scarlatinal serum was given intramuscularly, 10 c.cm. on each of the first two days. All spreading stopped—it had reached these limits in two days, starting on the nose—the temperature rose to 105° F. on the third evening, 103° F. on the fourth, and came down steadily by lysis to reach normal on the ninth day. Convalescence was rapid and uneventful.

Anti-streptococcal (erysipelas) serum is available in two manufacturers' lists to which I have referred, and Beckman's *Treatment* (1934 edition) states that this is the serum used at the Bellevue Hospital, figures from which were quoted by Dr. W. H. Brazil in the *Journal* of November 2nd (p. 840). This was not obtainable locally for the above case, and in one list the price is double that of the anti-scarlatinal serum, so I used the latter, which has always given me very good results ; but I should be glad to learn if anyone has experience of their relative merits.—I am, etc.,

Torquay, Nov. 10th. RICHARD A. LATTEY, M.B., Ch.B.

Prophylaxis Against Puerperal Infections

SIR,—It has become my practice at the onset of labour to inject the following vaccine mixture as an anti-pyrexial puerperal vaccine:

Streptococcus...	...	125 millions
Staphylococcus	...	125 millions
Anti-catarrh ...	...	0.3 c.cm. (St. Mary's formula)

The above mixture (which Philip Harris of Birmingham are prepared to make as a one-shot injection) has the object of minimizing or making impossible the commoner causes of pyrexia associated with the puerperium—namely, puerperal fever, influenza, infection of the breasts, and possibly phlegmasia alba dolens. Since it is impossible in general practice to collect convincing evidence as to the effect of this composite vaccine by statistical comparison, I have felt impelled to give it the publicity of your columns in the hope that some might feel inclined to adopt the method under conditions that enable comparisons to be made. The inoculation is made exactly at the onset of labour, when the immunity set up, although comparatively slight, nevertheless may be sufficient, because the patient is provoked to a phase of generative resistance to these infections just at the critical period, of from two to seven days after delivery, when infection begins. What cannot begin obviously cannot develop. A second injection of twice the dose on the seventh day might be advantageous, but I have never done this. So far I have had no rise of temperature after giving this composite vaccine. When given at this time there is very little, if any, local reaction, and there appears to be no general reaction at all, not even the drowsiness that sometimes follows the giving of a vaccine. This may be because the patient is at complete rest in bed ; or it may be that Nature at this period is prepared, as it were, to strike out and pour antibodies into the circulation on the least provocation. I included the anti-catarrhal formula of St. Mary's in the vaccine because I believe that many of the pyrexias of the first week of the puerperium are influenzal, possibly contracted in the shivering attack that commonly follows labour. Such a composite vaccine given as a routine might be of very great benefit, and I do hope that someone will give it a thorough try out. I feel that it is better to inject the vaccine as I say, at the onset of labour, than to give a course of injections several weeks before, because, unlike any other condition in medicine, we know to within a few days when infection will make its appearance, and a suitable vaccine given at the onset of labour enables the body to be in a nascent state of effervescent reaction to invasion, from which condition, it seems to me, success is more likely to be achieved.—I am, etc.,

Yardley, Birmingham, Nov. 2nd. J. C. JONES, M.B.

Views on the Cancer Problem

SIR,—In the discussion in the correspondence columns of the *Journal* on the above subject I think mention should be made of the ideas expressed by the late Dr. D. Montgomerie Paton in his book *The Interaction of the Lymph and Blood Glands* (Baillière, Tindall and Cox, 1935). Briefly, Paton postulates a hormone balance affecting all tissues and controlled by the lymphatic glands, which reverse any potent substances entering them unless these substances themselves emanate from the lymphatic system. Thus hormones reappear as chalones after passage through the lymphatics, and curb the otherwise excessive action of the hormones in the blood on the tissues. Paton regards cancer as produced by excess hormone action on tissue in individuals whose lymphatic system has lost control. The theory appears to me attractive, though experimental confirmation is not claimed ; there is, however, some suggestion of connexion with the lymph-stasis theory of Handley and the antecedent-tuberculosis theory of Cherry—the latter because tuberculosis may be supposed greatly to impair the lymphatic glands.—I am, etc.,

J. SANDISON YULE, M.D., F.R.C.S.Ed.

Victoria, Australia, Oct. 1st.

Diet and Chronic Gastric Disease

SIR,—I have just received a letter from a relative reporting on her husband's progress in hospital (one of the most famous "teaching" hospitals in this country). He is suffering from gastric ulcer. After about ten days in hospital, during which he has been starved for "a day or two" then given an alkaline powder with milk, he is now on soup, *fish*, and milk. Can we regard this common method of practice, both in hospital and in private, as scientifically defensible? Let me put the matter thus:

1. Delay, or relative stagnation, is the principal characteristic of the unphysiological state which commonly results in ulceration of stomach or duodenum.

2. Delay in the passage of food and its remains through the intestinal canal is recognizably greatest—whether in relative health or in avowed disease—when animal foods are taken. This is one of the fundamental observations of medical science: of the institutes of medicine.

3. Such delay is commonly accepted as being a disease-producing factor, or at least as an accompaniment of disease.

4. The elimination of animal-protein foods from the diet (daily intake) results in a restoration of the true (physiological) rate of progression of food and its remains through the intestinal tube.

5. Therefore it is wrong practice to give patients suffering from chronic constipation, with secondary stagnation lesions of the stomach, the sort of food that is known to induce such stagnation.

6. Above all other reasons, it is known that the omission of animal-protein foods from the daily ration results generally in an increase of both strength and body weight; and that, on historical evidence, even down to the penultimate generation, the daily consumption of animal foods—meat, or fish, or eggs, or fowl, it matters not which—is an entirely modern development for the people as a whole. During the period of this alteration of food-habit chronic gastric disease has enormously increased.

Allow me, in conclusion, to put a question to all who are interested. Can we defend a mode of practice—the giving of fish, or meat, or animal-protein foods of any sort—to those who have broken down on such a diet, knowing well that we are thereby returning them, after a period of rest, to the same mode of life that resulted in breakdown (their other habits being constant); knowing, also, that a comparatively vegetarian regime is the one means we possess for restoring health in such cases; and believing from the evidence of history that the people of our race were at least comparatively free from chronic gastric disease when they lived a relatively vegetarian life?

I submit—and beg members of our Association to discuss the matter fully—that the present system of temporarily relieving patients by eliminating the burden of unphysiological diet and immediately reimposing that burden, even before the patients are out of hospital, is an indefensible proceeding. Alternatively, are we justified in encouraging people whose health has broken down on a particular system of diet known to be fundamentally different from that on which our race was previously notably robust, to resume that diet as soon as—by reason of bodily and digestive rest—they have recovered some degree of health?—I am, etc.,

Hadleigh, Suffolk, Nov. 5th. J. C. WATT.

Aural Meningitis

SIR,—Dr. Riddoch, in his article on the treatment of meningitis in the *Journal* of November 2nd, states that recovery from streptococcal and staphylococcal meningitis, secondary to sinusitis or mastoiditis, is always possible provided that adequate drainage is established and the bulk of intracranial infection is not great, as shown by the absence or small number of organisms found in the cerebro-spinal fluid. He also says that withdrawal of as much fluid as possible by lumbar puncture should be carried out at least once daily. This implies that if a person has a discharging ear and clinical signs of meningitis he should have a lumbar puncture and as much fluid drawn off as possible. I realize it is not meant to exclude local treatment.

The rule in this hospital is that lumbar puncture may not be done for diagnostic purposes, and the cerebro-spinal fluid must not be drained off unless an operation performed for meningitis has failed. Lumbar puncture is useless for diagnostic purposes, as clinical signs are diagnostic without lumbar puncture, and withdrawal of as much fluid as possible will infect the cerebro-spinal fluid, when it may only be under pressure and have an increased cell content without the presence of bacteria.

From an aurist's point of view the proper treatment is a mastoid operation with a wide exposure of the meninges and an attempt to isolate the petrous bone. If scientific curiosity demands a lumbar puncture then only 1 c.cm. should be withdrawn. Personally I should never, at that stage, even do that. When, however, the isolation of the petrous bone has failed to allay symptoms then lumbar puncture and removal of 1 c.cm. for diagnostic purposes is justifiable. If a Gram-positive organism is present in the smear or culture then a meningitis is present which has not yielded to the removal of the cause. In such a case withdrawal of as much cerebro-spinal fluid as possible is right. However, if no organism is found the cloudy fluid is due to tissue reaction, and so drainage would be dangerous.

The reference to the injection of serum or antitoxins must refer to meningococcic cases, as the injection of serum in aural cases is not successful.—I am, etc.,

W. S. THACKER NEVILLE,
November 6th. Memorial Hospital, Darlington.

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Migraine

SIR,—I was interested in a letter you published on November 2nd from Dr. H. W. Barber on the subject of migraine and its allied disorders. His submission that water retention is the immediate cause of recurrent attacks or exacerbation of the symptoms in migraine and epilepsy was emphasized frequently in his lectures by the late Dr. James Collier. Dr. Collier always held that the symptoms of migraine were due to the swelling of the brain, and, as Dr. Barber points out, the paroxysmal diuresis which is an inevitable accompaniment of the condition—the "urina spastica"—points to the correctness of the assertion.

In some cases a new cause has been put forward to explain the occurrence of migraine in certain types of women who have migrainous headaches during their periods or have worse attacks at such times; with the advent of the menopause it is not uncommon to find that the attacks cease. It has been stated by Dr. Hurst that he considered there might be some mechanical action for this: the pituitary might be involved, as one knew that during the menstrual period there is a variation in the several glands, which become more active. It might well be that the pituitary becomes swollen. Thompson had radiograms taken of some of these patients, and he found a curious appearance of the roof of the pituitary fossa. It looked as if there was a fibrous roof, as though there had been some calcification of the roof, and that was the cause of the resistance when the pituitary swelled. These patients were given injections of ovarian secretion before their periods, and he was thus able to prevent the onset of the headaches. The explanation was a new one, but he had radiological evidence in support of it. In one particular patient the ovarian secretion did not help when injected, so an operation was performed on the skull; they actually found the calcified roof to the pituitary fossa and were able to break it down and get rid of it in that way. The patient had no more headaches.—I am, etc.,

London, N.1, Nov. 6th. C. HORWITZ.

Pyloric Stenosis in Uniovular Twins

SIR,—In reply to Dr. W. M. Feldman (November 2nd, p. 875), the evidence that the twins with congenital pyloric stenosis were uniovular was supplied by Dr. Thomson. He delivered these infants, and observed that they had one placenta with a common circulation. The tests mentioned by Dr. Feldman were not carried out.—I am, etc.,

J. W. REDGATE, M.R.C.S., L.R.C.P.,
Late R.M.O., Harrow and Wealdstone Hospital.

Middlesex Hospital, W., Nov. 8th.

Poisoning with "Meta Fuel"

SIR,—I was recently unfortunate enough to have a case of poisoning with "meta fuel" to deal with, and in view of the popularity of this substance, its poisonous nature, and the comparative difficulty I had in finding out what the treatment and prognosis should be, I offer a few notes which may assist doctors in similar cases.

The patient was a healthy boy of 20 months; he had a good breakfast of scrambled egg on toast at 9 a.m. and then found a box of meta fuel tablets at about 10 a.m. He chewed one of these for about five minutes before his mother removed it from his mouth without realizing what it was. He went out for his usual walk, with pram, at 11, and whilst out developed violent hiccups, and was pale and apt to "faint off." At 12 he had 5 minims of tinct. carmin. in water in an attempt to relieve his hiccups, and a further similar dose at 12.30. This last dose made him sick—he vomited the egg, and some white powder was visible. It was only then realized that the "sweet" must have been the meta fuel. He was given warm gruel as a demulcent, followed by copious draughts of hot black coffee, which acted at first as an emetic, then half an ounce of castor oil and several tablets of activated charcoal, most of which was retained, and was treated for shock by more coffee and warmth. For the remainder of the afternoon, until about 6 p.m., he remained collapsed with a pulse varying from 120 to 144 and a temperature of 96° or less. At 3 p.m. he was comatose and developing clonic twitchings, but no true convulsion occurred, and the coma only lasted for half an hour, when he was roused by more hot coffee. His colour gradually improved from a cyanosed pallor to a brilliant flush at 6 p.m., though his temperature then was only 97.6°. The castor oil had worked at about 2.30. He was given a rectal glucose saline slowly at 6.30, and spent a fairly restful night with occasional drinks of glucose orangeade. The following morning his temperature was normal and pulse rate 96; he had pronounced tremor and was very unsteady, though trying to walk about as usual. The tremor disappeared in three days and also the unsteadiness. He made an excellent recovery on a mild alkaline rhubarb mixture.

Meta is compressed metaldehyde, a polymer of acetaldehyde, manufactured from acetylene by catalysis and not from alcohol, and is specifically toxic to the central nervous system. The packet in which it is sold has a warning against its consumption, but in my opinion there should be a large POISON label affixed to impress mothers with the danger of leaving it within reach of infants. Its taste is alleged by the agents for distribution in this country to be nasty; to me it tasted like chalk, while the patient in this case definitely chewed it for some minutes.

I am indebted to Messrs. Elmesan, the distributors, for the following advice for treatment in cases of meta fuel poisoning:

1. Immediate washouts of the stomach with large quantities of sodium bicarbonate solution. These should be repeated frequently and performed slowly for the first time on account of the development of CO_2. (Stomach acid must be neutralized because meta does not depolymerize in alkaline medium and only the products of depolymerization are toxic.)
2. High colon washouts with alkaline solutions.
3. Purgatives after washing out: Glauber's salt or castor oil. No phenolphthaleine or acids.
4. Large quantities of charcoal, preferably wood charcoal.
5. For the heart: caffeine and, if necessary, strophanthin intravenously.
6. No narcotics if possible. Against cramps getting too intensive—sodium salt of veronal (Martindale recommends potassium bromide and chloral to control convulsions).
7. Intravenous injections of calcium Sandoz and by all means repeated intravenous injections of 30 to 40 per cent. glucose.

—I am, etc.,

Greenford, Middlesex, Nov. 10th. ALISTAIR FRENCH.

Hyoscine in Parkinsonism

SIR,—I was interested in Dr. Edward Gowlland's letter in your issue of November 2nd on the success of hyoscine in the treatment of Parkinsonism, and would like to add my experience.

During my time as regional medical officer of a municipal hospital I had a case of a boy, aged 20, suffering from marked Parkinsonism. The condition was such that he held his affected arm between the wall and his back in order to steady the limb. I tried hyoscine orally but got very little result. Then I tried hypodermic injections of hyoscine hydrobromide, 1/200 grain, once daily. That controlled the movements, and the patient himself often asked for his injection. The ward sister complained that the boy was sleepy and lazy until the hypnotic action of the drug was explained to her. I admit having a few qualms of conscience about making the boy a drug addict, but as he showed definite improvement I continued the treatment. After a few months I reduced the hyoscine to 1/200 grain every second day. At the end of about eight months I discharged the patient, satisfied that he was much improved and presented no obvious signs of Parkinsonism to the casual observer. I saw the patient again after a few months and found that his improvement was maintained and that he was working as a shop assistant.

Some of the textbooks suggest hyoscine as a palliative treatment, but it requires time and patience—the patience of pity—to get ultimate success in these cases. My opinion, based on this case, is that hyoscine is of definite value in Parkinsonism, and the result repays the amount of patience and perseverance expended.—I am, etc.,

A. J. DUNLEVY, L.R.C.P. and S.I.

Mountcharles, Co. Donegal, Nov. 9th.

Idiosyncrasy to Aluminium?

SIR,—In view of the recent investigation by the Ministry of Health into the question of aluminium cooking utensils, and the note on the Ministry's report published in your issue of November 2nd, I feel that the following case should provide food for thought for any who may chance to read this letter.

A female patient, aged 36, had for some ten years or more suffered from definite symptoms, chief among which were periodic attacks of vomiting and diarrhoea with generalized abdominal pain, continual anorexia, with lassitude and general depression, her weight being in the region of 7 st., and she also suffered from boils. During these years, as possible sources of focal infection, she had her tonsils, appendix, and gall-bladder removed, and her teeth completely overhauled—all with no improvement whatsoever. In the summer of 1933, when she was almost on the point of giving up her work on account of her chronic ill-health, she was persuaded by a non-medical friend to give up using aluminium cooking vessels, with the result that during the following twelve months she was entirely free from any symptoms whatever, and put on over 2 st. in weight. (This, obviously, might have been due to the psychological effect of "trying something new," but, in view of what follows, I think not.) In the summer of 1934 the patient had two weeks' summer holiday, the first week being spent at a hotel in Cornwall and the second at a hotel in South Devon. During the first week she was ill the whole time, her symptoms being much the same as before—vomiting, diarrhoea, abdominal pain, lassitude, and depression—and she began to wish she had not taken a holiday. The possibility of aluminium poisoning apparently did not enter her head at the time. However, after two days at the second hotel she recovered, and at the end of the fortnight felt very much better for her holiday. The hotels, incidentally, were of much the same standard as regarded general comfort, cleanliness, and food, both being marked with three stars in the A.A. handbook. About a month later the question of aluminium suddenly occurred to her as a possible cause of the illness, and she wrote to both hotels, asking what

proportion of their cooking, if any, was done in aluminium vessels, and received the following interesting replies: that at the first hotel, where she had been ill the whole time, aluminium cooking vessels were used for all the cooking, and that at the second hotel no aluminium vessels were used at all. Some six months later the same patient spent a week-end at a ladies' club in London, and when she returned was completely incapacitated from her work for two days, with exactly the same symptoms as before, and a letter to the club elicited the information that a large proportion of their cooking vessels were of aluminium.

These facts surely cannot be explained on a psychological basis, and personally I feel very strongly that the last word on this subject has definitely not been said. "The Ministry says that aluminium is safe"—possibly it is—for the vast majority of us, but if so, then the above case is obviously one of idiosyncrasy; and where there is one case of idiosyncrasy there must surely be hundreds, if not thousands, of others among the vast army of chronic dyspeptics that fill every consulting room in the country. I would suggest, therefore, Ministry of Health or no, that the discarding of aluminium cooking utensils by these patients is a line of treatment which is at least worthy of a trial.—I am, etc.,

Reigate, Nov. 10th. E. J. Dennison, M.B., B.S.

Voluntary Euthanasia

Sir,—It is to be hoped that the immediate effect of the "propaganda for legalization of voluntary euthanasia" will be to invoke a free expression of opinion from all branches of the profession, and particularly from those who have spent their lives in the intimate study of humanity in the everyday surroundings of the home, and who have thereby learned to appreciate the more fully the intricacies of human life and of individual values in the various and varying conditions under which mankind exists and works and has his being. A mass of such opinion must lend a valuable contribution to the achievement of a wise decision.

During countless generations destruction of the stricken individual by the herd has been practised among the lower animals and among uncivilized races of man for the purpose of benefit to the community. Among civilized peoples, likewise, the principle holds good that human life may rightly be sacrificed for the benefit of others, though strenuous effort is now being made to render such sacrifice unnecessary; but that any person should be authorized to sacrifice a human life for the sole benefit of the individual seems a retrograde step, serving a lower purpose at variance with the higher principle.

There are many pitfalls into which acceptance of the principle of euthanasia may eventually lead, some of which may not at present be within the perspective of the intended Bill. In so far as pain and suffering are largely dependent upon, and influenced by, psychological factors, it is questionable whether it is possible to estimate the degree of such suffering; doubt may be thrown upon the assumption that physical suffering is the most dire fate to which humanity is subject, or that there is not value to the community in the exhibition of courage which such suffering engenders; nor can it be denied that mental anguish may reach a higher place than physical suffering, and by logical sequence should therefore be terminable in like manner; prophylactic experts could reasonably argue that since life cannot be separated from suffering the proper course at birth would be to terminate human existence altogether.

If it is indeed necessary to legislate for the benefit of those who believe that they suffer beyond their capacity to endure, it would be a more simple and a safer course to amend the law of the coroner's court; for it is difficult to believe that whereas suicide is contrary to Christian principles euthanasia is not contrary to those principles—a matter perhaps for experts to argue, though it is not to be expected that unanimity would be attained. It is certain that none do know the purpose for which human life exists, nor, there being life, for what purpose suffering exists; none know the nature of the scheme of which such life and suffering are a part, nor what ultimate effect upon the individual puppets in such scheme the proposed measure would inflict.—I am, etc.,

Torquay, Nov. 9th. A. E. Carver, M.D.

Medical Science and Social Progress

Sir,—I was much perplexed by many of Lord Dawson of Penn's arguments in favour of sterilization, as reported in your issue of November 2nd. May I have space to make what seem to me appropriate remarks? I have no quarrel with Lord Dawson's ultimate aim—that is, a healthy race. Some of his methods—for example, sound nutrition and physical education—are undoubtedly calculated to help in achieving this aim; but sterilization, the method which he chiefly advocates, in combination with contraception, of which he apparently approves, is rather calculated to achieve another effect—not so much an unhealthy race as no race at all.

He argues as follows. If the birth rate is falling, as it undoubtedly is, it becomes necessary to ensure that the loss in numbers is compensated for by a gain in quality. To ensure that gain in quality, or at least to prevent deterioration, it is necessary to prevent the propagation of those obviously below par. This may be achieved by sterilization. To my mind Lord Dawson fails to go sufficiently far back in his chain of reasoning. Would it not be worth while to investigate the sources of the low birth rate and see if it is quite as inevitable as it appears to be? Lord Dawson traces it, via contraception, from economic factors. Economic factors being, as he tacitly and reverently assumes, incontravenable, the low birth rate is inevitable. But is contraception due solely to economic factors? I imagine not. Rather is it due to that very common trait in human nature, the desire to avoid trouble as much as possible. "Large families are troublesome—I dislike trouble—the doctors have shown me a way out involving no sacrifice of pleasure on my part—why not take it?" such is the process of thought of many married people of the present day. Hence, as Lord Dawson says, contraception. But Lord Dawson does not put it in that way. Medicine has reduced the death rate to one-third or one-quarter of what it was sixty years ago. Consequently the previous large conception rate, if it had continued, would not be offset by a corresponding large death rate. As a result the size of families, and presumably the population, would have increased. This would never do, in Lord Dawson's opinion. His own words are: "With the steady and considerable fall in the death rates something had to happen: hence contraception." But why? Why must *contraception* happen? Why, indeed, must *anything* happen? Is a large family so decided an evil, something to be avoided as the plague, as Lord Dawson seems to think? He gives no reasons, but his opinion is apparently all the more decided.

Let us examine this question of contraception from another point of view. The classes which most practise it are the more prosperous and intelligent classes—that is to say, the classes most fit for propagating "biologically sound lives," and for providing a proper environment for those lives. This is obvious from the fact that small families are more common among these classes and large families among the lower classes. The moral to be drawn from that is that the declining birth rate especially affects

the " biologically sound," and that the ratio of " unfits " is increasing. An alarming result of contraception which paves the way to sterilization!

To return to Lord Dawson's argument, he claims that sterilization of the unfit will prevent their propagation and by this means prevent damage to the community. To illustrate this he gives a brief account of the mechanism of heredity, and stresses the influence of heredity on the final make-up of the organism. Naturally this account bears the impress of Lord Dawson's authority, and a humble member of the profession would never dream of attacking it—the less so since it gives away some damaging facts. He says: " Should one gene of a pair be normal and the other defective, in the child the function is normal " (that is to say, as he explains, the normal gene is the dominant one); and again: " With dominant and recessive genes equal in numbers progeny will show the dominant characters three times as often as the recessive ones." This can only mean that a defective parent is capable (if mated with a normal parent) of bearing three normal children out of four. That is to say, that every time a person defective in any way is sterilized, three normal persons as against one defective are deprived of a chance of existence so that the defective may be prevented from being born.

I apprehend that heredity is not capable of being controlled as easily as Lord Dawson would have us believe. He shows that he has some lurking suspicion of this himself in his last paragraph, when he says: " With environment sound, it is the individual man, what he inherits, what he becomes, how he overcomes, that has the first and last words." The individual man, what he becomes, how he overcomes! Enlightening words. Man *is* affected by his heredity, as he is affected by his environment, but no man is solely dependent on either heredity or environment. It is the calibre of the spiritual part of him that counts. He may yield to them if they are bad, and be a failure. But even if they are bad he may overcome them, and attain, not always prosperity, but at least happiness. And no man—neither doctors, nor officials, nor churchmen, and his parents only to a degree—has the right to take that choice from him.

In the above I have purposely refrained from saying anything of the supernatural side of the problem, which, indeed, is the paramount consideration, and overwhelmingly opposed to such so-called " eugenic " tinkerings.—I am, etc.,

Newry, Ireland, Nov. 4th. J. J. McNAMARA, M.B.

Medical Assessors

SIR,—Your leader on this subject in the *Journal* of November 2nd (p. 845) gives me the opportunity of suggesting some alteration in the procedure as to medical evidence in courts of law.

It is desirable that medical evidence shall be impartial, and that there shall not be seen in the courts of law the spectacle of conflicting medical evidence. But under the present system this ideal is not always easy of attainment. Claims for compensation for physical damage occur under the Workmen's Compensation Act and motorists' third-party liability.

The injured party is naturally anxious to get as " good " compensation as possible for his injuries. He is unlikely to make light of his symptoms or to underestimate his disability, and he knows that he is claiming against an insurance company. The insurance company is a business concern, knows of these factors, and attempts to keep down its out-payments in compensation. These factors are likely to find some expression in the opinions given in the reports of the doctors for either side. The medical evidence, like the legal pleading, is likely to have a bias in favour of its employer. Not infrequently the medical evidence for the plaintiff is given by " his own doctor." Counsel, on each side, will emphasize those points in medical, as well as in other, evidence which help his side, with the result that legitimate and natural differences of opinion on prognosis, etc., dependent on the point of view, will be stressed.

In many cases it should be possible for the medical men on either side to meet, and with a little give-and-take arrive at an agreed medical report which would relieve them of the necessity for appearing in court. Where such meeting resulted in failure, agreement might be made possible by the calling in of a third medical man, of standing, to act as arbitrator.

Attendance at assizes often entails some tedious and apparently wasteful waiting about before the case is called. Some months ago I had to travel twenty miles to court, and my colleague for the other side had to travel ten miles. After waiting for a day and a half for our case to come on our patience was worn thin, and we intimated to our solicitors our strong desire to attempt to agree the medical evidence and get our dismissal. Permission was given, and with the help of a borrowed typist we were able at the end of an hour to present an agreed report, which was read in court on the following day when the case was tried.

If the authority which appoints registrars would also appoint a medical board to report to the court in cases under the two Acts mentioned time and money would be saved. The plaintiff's physical condition would be subjected to an impartial investigation, and the medical board would place before the court all the relevant medical facts and an opinion as to the disability. With these and the other relevant facts before it, the court would be in a position to estimate the amount of monetary compensation which should be awarded. For the two classes of cases mentioned I am in favour of assessor rather than no assessor; but, better still, and doing away with the need for an assessor, I would advocate agreed medical evidence, and, failing that, the report of a medical board.—I am, etc.,

Worthing, Nov. 5th. C. GIBSON.

SIR,—In the *British Medical Journal* for November 2nd the article on medical assessors seems to omit reference to what is probably the true but a lamentable cause of judicial reluctance to avail themselves of expert professional skill and distinctive qualifications in the elucidation of that conflicting evidence which has become a matter of humiliating frequency. Time and again the court is perplexed by the emphasis or the hesitancy displayed by one authority in contrast with the scepticism or the dogmatism of the other. While honesty would induce a guarded reply in one witness, the opposing authority, equally credible and similarly qualified, is often so didactic as to engender the presumption in the lay mind of a partisanship at once inequitable and prejudiced. Scathing reflections on a science which yearly grows more exact results from this opposition of experts, who, while often unanimous in private consultations, become readily recalcitrant in court. A distinguished authority may aver that the plaintiff will never walk again, while his equally eminent colleague affirms that the litigant will be fit and well in a few weeks.

The very necessity for appointing medical assessors argues an unwillingness or inability on the part of witnesses to mould their views on a basis of fact. Conscientious differences are doubtless commendable, and truth will combat concession for the sake of form; but, with

the assertion and denial, the positive affirmation with its inevitable contradiction, it is not surprising that in medical evidence the judiciary is little disposed to give either side much credence. The court is thrown on the resources of its intelligent but inexperienced outlook, and injustice must sometimes result. Counsel can play on the divergence of views ; juries, from the haze and maze of irreconcilable reasoning, may be misdirected by the judge or base a verdict on their own ideas, emotions, and imagination. Notwithstanding statutory authority under the Supreme Court of Judicature Act, 1925, Section, 98, empowering them to implement juridical directions by assessorial advice, judges, notoriously intolerant of interference, are averse to adding to the confusion of evidence so polemical or obscure.

The choice of medical assessors would prove difficult to make. An expert, to be consistently expert, must engage in continuous exercise of his vocation, and his art can never lie fallow. The daily adjudication by an assessor would preclude this essential ; nor would the public take kindly to what might be considered a usurpation of judicial function by men possibly as pragmatical and opinionated as the contending witnesses.

The remedy lies in removing the cause of these unedifying exhibitions by instructing students of medical jurisprudence more thoroughly in this subject and inculcating the habit of clear thinking and precise expression. —I am, etc.,

JOHN SHIEL, L.R.C.P., L.R.C.S., Ph.C.,
Dublin, Nov. 4th. Barrister-at-Law.

The Status of the Ship Surgeon

SIR,—The interesting letters you have published on this subject all point to the fact that there is great need of organization in this branch of our profession. Some of the leading steamship companies who have medical superintendents and a staff of permanent surgeons are in a satisfactory state. Their medical officers know the kind of work they have to meet, and those who have been found wanting drop out. In all big liners there is a reasonable amount of private practice, and it is worth while for the surgeon to keep himself competent and ready to deal with any medical or surgical emergency. But there remain a large number of steamships which put to sea with occasional surgeons of very varying ability. In transatlantic voyages the few days at sea make less urgent demands than is the case during longer voyages lasting several weeks. But in any case no practitioner should offer his services or be accepted by steamship officials unless his surgical ability is at least equal to that of a senior house-surgeon.

These sea appointments are often made in far too haphazard a manner. In this country we are behind other nations, notably the Italians and Japanese, who require that medical men who take up this special kind of work must prove their ability in a Government maritime board examination. The status of ship surgeon will continue to be unsatisfactory until it is made the subject of organized selection. In any case one would like to see it made a *sine qua non* that every ship surgeon after three to five years' work should be required to undergo a full post-graduate course—not at his own cost, but at the expense of the company in whose employ he is and who will reap the benefit of his refreshed competency.

So far shipping companies have paid scant attention to the scheme drawn up by the Ship Surgeon Post-Graduate Committee of the British Medical Association and the facilities offered by the Seamen's Hospital Society. An important desideratum should be that no vessel be allowed to put to sea with a ship surgeon whose competency has not been gauged by a medical man who has practical knowledge of the requirements of this special line of work.—I am, etc.,

Edinburgh, Nov. 9th. G. DOUGLAS GRAY, M.D.

SIR,—When I wrote a letter to the *Journal* on this subject on September 14th (p. 520) I hardly thought that it would have started such a discussion, but the letter of " Occasional Ship Surgeon " in your issue of November 9th (p. 927) makes me feel constrained to write again, as he wants to know the results of the three major operations.

In 1932 a case of acute intestinal obstruction occurred in a third-class passenger. The cause was strangulation of the small intestine by an adhesion band produced by a previous operation of cholecystectomy and appendicectomy. The result, as ascertained from the hospital at Quebec, where the patient was landed four days after the operation, was recovery, though this was delayed by epilepsy and gastric haemorrhage. She eventually returned to her home in Detroit.

The second case—acute appendicitis—occurred in September, 1933 ; the patient was an apprentice, aged 17 years. I had much difficulty in convincing the captain, who was acting *in loco parentis*, of the dangers of waiting and seeing, but my action in undertaking immediate surgical action was justified, as the appendix was distended with pus and would have ruptured, I think, in an hour or two.

The third case, in July of this year, was that of a pantryman, and was very similar to the second. Recovery in both these cases was rapid and uneventful.

In 1934 my partner, on the only voyage he has done as ship surgeon, was faced with a case of acute appendicitis in one of the engineers. It was one of those fulminating cases, and although the patient was operated upon by my partner without delay, the condition was so grave that he gave a hopeless prognosis. Actually his prognosis was wrong, for the patient recovered.

" Occasional Ship Surgeon " says that at home a case requiring operation is passed on to a surgeon who has specialized in surgery. The whole point of my first letter was that on board ship one cannot count on being able to pass on anything, and admittedly conditions may be very difficult. In the second case, for instance, there was no theatre and a minimum of appliances, and it was rather a nightmare task to operate under such conditions ; but the ship was small.

" Occasional Ship Surgeon " says that no one should attempt abdominal operation on board ship without experience, and I agree that a " terrible responsibility " is thrown on the surgeon when these emergencies arise. But desperate conditions need desperate remedies, and if these are not undertaken fatal results will occur, and do occur. That they do occur is to be deplored, and the sooner ship surgeons are given the opportunity of making themselves competent, at least to perform life-saving operations, the better.

I am certainly not in the happy position that " Occasional Ship Surgeon " has assumed, and I certainly cannot leave my practice whenever I feel inclined. My usual course is to apply for any vacancy there may be (for my vacation, by the way), and if it suits me both as to time and duration I accept it, and so far I have been fortunate. If the rota scheme were adopted naturally men willing to serve would be asked to state when they would be free each year, and for how long. It would be ridiculous to suggest that any practitioner could just go off when he felt so inclined, and many times a year.

As regards post-graduate study, I am sure that what all concerned desire is that the shipping companies could be made to recognize the necessity of it. Perhaps one day they will. It has been said (by Dr. Meighan, *Journal*, October 5th, p. 644) that " the primary object of a

shipping company is to make money." Does it save money by having navigating officers or engineers who, because they are unqualified by reason of inexperience, and therefore willing to sign on for a small wage, are unable to cope with any emergency that may arise during a voyage? The answer is in the negative. Why, therefore, should the medical department run the risk of being inefficient for financial reasons? Is the value of a life so small compared with that of engines or hull?—I am, etc.,

Herne Bay, Kent, Nov. 9th. J. R. HAMERTON, M.B.

Dental Deformities

SIR,—I regret that this letter is a week late. May I point out to Dr. Elwin Nash that instead of trying to impress us with the extent of his experience, and overbear us with the weight of his authority, it would be more satisfactory if, as I suggested in my first letter, he re-examined his patients' lips with a view to deciding whether my prediction concerning the presence of rhagades and/or dermization of the red margins was or was not correct.—I am, etc.,

Dublin, Nov. 12th. ROBERT H. WOODS.

War and Peace

SIR,—It would be a pity to let Dr. Brock's able letter go by without saying that there is one person who heartily agrees with him. I think, however, he goes off the line when he shies at the League of Nations. At any rate the League is an excellent way by which the nations, small and large, can express their individuality, and I for one believe the small nations have a valuable contribution to make. The tendency of to-day, however, is all to increase herds and suppress individuals, and I believe it is quite wrong. The path of least resistance is to bolster up the big towns, herd the people in flats, and take away their individual freedom. Happy family life, which is the foundation of a stable State, is impossible, or very difficult, to live in flats, and the encouragement of this kind of life seems to be the deliberate policy of the State.

It seems foolish, too, when we are told of the horrors of aerial warfare, to increase the potential horrors by crowding people together, so that a bomb dropped on a "flat" dwelling might cause panic and loss, and increase "mass terror." I am afraid that the logical consequences of some of our legislation is never thought out, and will only be made right after much distress and enormous economic loss.—I am, etc.,

Letchworth, Nov. 16th. NORMAN MACFADYEN, M.B., D.P.H.

The Services

HONORARY SURGEON TO THE KING

Surgeon Rear-Admiral G. L. Buckeridge, O.B.E., has been appointed Honorary Surgeon to the King.

No. 14 STATIONARY HOSPITAL DINNER

The sixteenth annual dinner of the medical officers of No. 14 Stationary Hospital will be held on Friday, December 6th, at the Trocadero Restaurant, Piccadilly, at 7.15 for 7.45 p.m. Colonel C. R. Evans, D.S.O., will be in the chair. The price of the dinner is 12s. 6d., exclusive of wines; evening dress or dinner jacket; miniature medals optional. The honorary secretaries are Colonel H. M. Perry and Dr. H. L. Tidy, 39, Devonshire Place, W.1.

Obituary

W. A. WINTER, M.D., F.R.C.P.I.

Physician, Steevens' Hospital, Dublin

Dr. William Arthur Winter, whose death took place suddenly on November 2nd at 17, Fitzwilliam Place, Dublin, was in his sixty-seventh year. He died quite unexpectedly, and was about his ordinary professional duties on the day of his death.

He was the son of Mr. Richard Winter, and was born in Dublin in 1868. He received his early education at the Rathmines School, and then entered Trinity College, Dublin. He graduated B.A. in 1890, and obtained his medical degrees, M.B., B.Ch., and B.A.O., in 1891, proceeding to the M.D. in 1895. He obtained the diploma M.R.C.P.I. in 1898, and was elected a Fellow in 1901. He also had the D.P.H. of the Royal College of Physicians and Surgeons of Edinburgh. Dr. Winter was for many years physician to Steevens' Hospital, Dublin, and consultant physician to the Convalescent Home, Stillorgan. Early in his professional career he practised for some years in England—at Stockton-on-Tees—but returned after some time to his native city, where he had an extensive practice. In 1924 he was elected a vice-president of the Royal College of Physicians of Ireland, and in 1927 succeeded Professor T. H. Wilson in the office of President. During the great war he held a commission as major in the R.A.M.C. He joined the British Medical Association in 1893.

Though quiet and unassuming in both professional and private life, Dr. Winter made many loyal friends amongst his colleagues and the public. He was a member of the Friendly Brothers Club, St. Stephen's Green, Dublin, and an honorary member of Dublin University Biological Association. He was a keen angler, and to it he devoted all his spare time. He did not write much on medical matters, but as a Fellow of the Royal Academy of Medicine he read, from time to time, at meetings of the medical section, papers on an epidemic of typhoid fever, notes on the examination of blood corpuscles in enteric fever, and notes on a case of splenomegaly.

[The photograph reproduced is by Lafayette, Dublin.]

GEORGE YOUNG, M.D., M.R.C.S.

Ophthalmic Surgeon, Essex County Hospital

Dr. George Young, ophthalmic surgeon to the Essex County Hospital, Colchester, whose death at the age of 60 occurred on October 30th, was born in Bucarest, where his father, Dr. Young, was attached to the Court in a medical capacity.

He was educated at Zurich, and studied medicine there and in Philadelphia, taking his M.D.Zurich in 1901. He then came to England and took his M.R.C.S., L.R.C.P. in 1902. He worked in the ophthalmic department at the London Hospital under Roxburgh and also at Moorfields, where he became a clinical assistant. He also studied in Vienna under Professor Fuchs. In 1908 Young went to the United States, qualifying there by obtaining the M.D. New York State, and he practised in New York until 1914. He was assistant surgeon to the New York Eye and Ear Infirmary and ophthalmic surgeon to the

Central and Neurological Hospital, New York, and did much work in association with the late Dr. Marple. On returning to England in 1914 he immediately volunteered for the Army, but was not accepted, so he settled in Colchester, where he was appointed ophthalmic surgeon to the County Hospital and where he did much valuable work among the soldiers during the war. He joined the British Medical Association in 1916.

As can be gathered from his professional record, he was a man of very wide experience, but what perhaps interested him most was the treatment of glaucoma. He was very enthusiastic about the miotic treatment of suitable cases, and he worked out with the tonometer how frequently pilocarpine had to be used to keep the tension within normal limits, and found that he was able to control cases satisfactorily by this method. He also devised the operation known as double sclerectomy, and published his first results in the *Transactions* of the Ophthalmological Society of the United Kingdom in 1924, and he described the operation again with his latest modifications at the last meeting of the Oxford Ophthalmological Congress in July, 1934. Always a keen and devoted member of the Oxford Congress, which he joined in 1917, and a great lover of Oxford, he accepted the lectureship on physiological optics for the diploma in ophthalmology, Oxford University, and gave the lectures on this subject at each course for many years, in spite of indifferent health and often at considerable inconvenience to himself.

In addition to his ophthalmic work Young was a man of extremely wide interests: he was a highly skilled musician, and one of his hobbies was the making of violins. He was an animal lover and a keen gardener, being especially interested in roses. In fact it was difficult to mention a subject in which he was not interested and about which he had not a surprising amount of knowledge. With it all he was modest and unassuming, and never pushed himself in a way that he might justifiably have done. He was the essence of kindness and good nature, and his loss will be deeply mourned by his many friends and his patients, rich and poor alike.

P. H. A.

"R. J. M." has sent us the following account of the passing of Dr. EDWIN DOUDNEY, who died at Southsea on October 31st, aged 89 years. Dr. Doudney had outlived most of his colleagues and old friends, but those with whom he was associated during the last twenty years will be interested to know of his latter days. His end was peaceful—he suffered no pain, and just drooped like a fully blown flower, having given the best of a long life to his fellow-men. He was born at Sydenham, S.E., in May, 1846, and studied medicine, but before completing his hospital career he went to America—joined up with the Southern States and fought in the Civil War of 1860-6. He was captured by the Northern forces and detained in New York for three months as a prisoner of war. On his release he returned to England and enlisted in a heavy cavalry regiment, serving in the ranks until an accidental meeting with a friend of his father in Chancery Lane led to his abandoning a military career. He completed his studies in London and obtained the M.R.C.S. in 1870. He practised for a short time in Kent, but the wander-call won the day, and, joining the emigration service, he made many voyages in sailing ships to Australia, where later he pursued his calling for years in New South Wales and in Northern Queensland, where medical facilities in those days were few and transport hazardous. During the war, when in the neighbourhood of the seventies, he was a medical officer in the Orient and Blue Funnel lines to Australia, China, and Japan. Later he joined the staff of Milton Hospital, Portsmouth, and was transferred for duty to the mental hospital at Barming, Kent, where he remained six and a half years. He is survived by his widow, two sons, and two daughters.

Medico-Legal

A DECEASED DOCTOR'S CERTIFICATE

When a litigant has obtained from an eminent consultant a certificate proving an important fact, it may seem very hard on him that he should not be allowed to produce the certificate as evidence merely because the consultant happens to have died in the interval. This, however, is the state of the law, and likely to remain so. The general rule is that hearsay evidence is not admissible, whether it is written or spoken. Generally speaking, the only means of getting a certificate before the court is to produce as a witness the person who gave it. There are a large number of exceptions to the hearsay rule when the statement was made by a person now dead, and one of those exceptions lays down that a statement of a deceased person made in the course of duty may be received in evidence. The kind of statement which this exception lets in is an entry made in a ledger by a clerk whose duty it was to make such entries and who had no interest in making an untrue one.

Counsel have on many occasions tried to induce the courts to accept the statements of deceased doctors, often for apparently the best of reasons. In Dawson *v.* Dawson (1905) a wife charged her husband with adultery and with cruelty, alleging that he had infected her with venereal disease. She wished to put in evidence a statement made to her by a doctor whom she had consulted about her illness but who was dead; the court held that this evidence could not be admitted, as it was not a statement made in the course of duty, in the sense of the exception. In Mills *v.* Mills (1920) a wife in a similar position wanted to put in evidence the case notes of a deceased doctor. The president, Lord Merrivale, could not see that any duty was cast on the physician to make the record: he was practising alone and not in partnership; he did not make the notes in pursuance of any duty to the person consulting him, nor in pursuance of any statutory rule or any binding rule of his profession.

Hope springs eternal, and a week or two ago, in still another divorce case, Simon *v.* Simon, counsel acting for a "woman named" tried to produce in evidence case notes and a certificate written by a gynaecologist of great eminence who died within the last few years. His client was charged with committing adultery with the husband in 1928, and she gave evidence that in 1929, in order to rebut another similar charge unconnected with the case, she had gone with her solicitor to the gynaecologist's consulting room, had been examined by him, and had obtained from him a certificate which she considered to be a complete rebuttal of the charge. She was, of course, not allowed to say what was in the certificate, but she stoutly maintained that she was at all material times a virgin. Counsel argued that, although the case notes might not have been made in pursuance of a duty, yet the certificate was given in pursuance of the duty thrown on the consultant by his contract with the patient: he was doing the very thing which he had contracted to do. Mr. Justice Bucknill said that he could not see that the doctor had any duty to record the results of the examination or to hand to the solicitor a writing saying what those results were. No doubt he had done it in pursuance of his contract, as anybody else might hand a writing in pursuance of a contract, but his lordship did not think that the case came within the rule as it is stated in Smith *v.* Blakey (1867): that the exception is limited to the case in which it had been the duty of the deceased to do a particular thing and to record the fact that he had done it. On the arguments of counsel, a verbal statement would have been equally admissible, and if he were to admit the present document he thought he would be extending the rule in a very dangerous way.

It is obviously important that evidence should be given as far as possible on oath and tested by cross-examination, and the courts are right to insist on these safeguards and to be very grudging in their admission

of exceptions. This may seem a hard case, but it is difficult to see quite how the judge could accept an undoubtedly authentic certificate by a first-class gynaecologist without opening the door to all other medical certificates.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The Regius Professor of Physic, Dr. John A. Ryle, announces that his inaugural lecture will be delivered in the Department of Physiology on Tuesday, November 26th, and that his subject is "The Aims and Methods of Medical Science."

UNIVERSITY OF LONDON

The following appointments were made at a meeting of the Senate on October 23rd: Dr. A. M. H. Gray, Governor of the British Post-Graduate Medical School; Mr. H. J. Nightingale, Member of the Council of the University College of Southampton; and Sir Ernest Graham-Little, Professor H. R. Kenwood, and Sir Holburt Waring, Members of the Court of Governors of the London School of Hygiene and Tropical Medicine. Professor M. Culpin was nominated for appointment as Governor of Hackney Downs School.

Dr. Alexander Haddow has been reappointed to the Laura de Saliceto Studentship for 1935-6 for the continuation of his research in the bacteriology department of the University of Edinburgh.

UNIVERSITY OF SHEFFIELD

At its meeting on November 8th the University Council accepted the resignation of Mr. T. B. Mouat of the post of honorary demonstrator in operative surgery, and thanked him for his services to the University.

The following appointments were made: *Lecturer in Surgery to Dental Students*, Mr. Mouat; *Demonstrator in Operative Surgery*, Mr. Wilfred Hynes.

Professor G. A. Clark and Professor A. E. Naish were appointed, with others, as representatives of the University on the management committee of the Sheffield Hospitals Council, Ltd.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Annual Meeting of Fellows and Members

The annual meeting of Fellows and Members will be held at the College in Lincoln's Inn Fields, W.C., on Thursday, November 21st, at 4 p.m., when a report from the Council will be presented. Fellows and Members can obtain copies of the report on application to the secretary, and can, if they so desire, have their names placed on the list of those to whom the report is sent annually. A copy of the agenda will be issued on or after November 16th to any Fellow or Member who may apply for one.

The following motion will be moved by Dr. C. Luther Batteson, seconded by Dr. Richard Gillbard:

> That this forty-sixth annual meeting of Fellows and Members of the Royal College of Surgeons of England again affirms that the Members, who constitute 90 per cent. of the College, should have some representation on the council, a similar resolution having been passed forty-five times and never once lost.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

A quarterly meeting of the College was held on November 5th, when the President, Dr. Edwin Bramwell, was in the chair. Dr. Helen M. Russell (Edinburgh) was introduced and took her seat as a Fellow. Sir Harold Gengoult Smith (Melbourne) and Dr. S. S. Rosebery (Sydney) were elected Fellows.

The Hill Pattison-Struthers bursary in anatomy and physiology was awarded to J. Tolland and the Wood bursary to C. C. Gardner.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At the annual meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on November 4th, the following officers were elected: *President*, Professor Archibald Young; *Visitor*, Dr. John Henderson; *Honorary Treasurer*, Mr. James H. MacDonald; *Honorary Librarian*, Dr. W. R. Snodgrass.

The honorary higher dental diploma was conferred on Mr. J. Forbes Webster, L.R.C.P. and S.Ed., F.R.F.P. and S. Glas., dean of the Incorporated Glasgow Dental Hospital.

Medical News

The fifth Victor Horsley Memorial Lecture, on "The Integration of the Endocrine System," will be delivered by Sir Walter Langdon-Brown in the lecture theatre, University College Hospital Medical School, Gower Street, W.C.1, on Tuesday, November 19th, at 5 p.m. The chair will be taken by Sir Frederick Gowland Hopkins, President of the Royal Society. Admission to the lecture is free on presentation of visiting card, and tea will be served in the library of the medical school at 4.30 p.m.

At the annual dinner of the Society of Medical Officers of Health, to be held at the Piccadilly Hotel on Friday, November 22nd, at 7.30 p.m., Sir George Newman is to be the guest of honour, following his recent retirement from the posts of Chief Medical Officer to the Ministry of Health and the Board of Education. Dr. W. G. Savage, president of the society, will be in the chair, and Sir Kingsley Wood, Minister of Health, will be among the guests.

The fifty-eighth anniversary dinner of the Cambridge Graduates' Club of St. Bartholomew's Hospital will be held at the May Fair Hotel on Wednesday, November 27th, at 7.30 p.m. Price of dinner, 12s., exclusive of wine. The honorary secretaries are Dr. H. N. Burroughes and Mr. Reginald Vick (113, Harley Street, W.1).

The annual dinner of the Prince of Wales's Hospital Club will be held at the Trocadero Restaurant on Thursday, November 28th, at 8 p.m., with Mr. Norman Fleming in the chair. The price of the dinner is 12s. 6d. (exclusive of wines), to be paid in advance. Those intending to be present should notify the honorary secretary, Mr. A. Lowndes Yates, 36, Harley Street, W.1, stating the number of guests.

The annual clinical "At Home" at the Royal Dental Hospital of London will be held on Saturday, November 23rd, at 3 p.m., when cases of clinical interest illustrating the scope of the work undertaken by the hospital, especially the treatment of children and the young, will be shown by members of the staff. The dinner of past and present students will be held at the Trocadero (Empire Rooms) in the evening at 7.30, with Mr. Herbert Smale in the chair.

The Glasgow University Club, London, will dine at the Trocadero Restaurant, Piccadilly, W., on Friday, December 6th, at 7.30 p.m., with Professor J. Graham Kerr, F.R.S., in the chair. Any Glasgow University men who, though not members of the club, desire to attend, are requested to communicate with the honorary secretaries, 62, Harley House, N.W.1.

A meeting of the Royal Microscopical Society will be held at B.M.A. House, Tavistock Square, W.C., on Wednesday, November 20th, at 5.30 p.m., when a paper will be read by Mr. J. E. Barnard, F.R.S., and Mr. F. V. Welch, on "Micro-projection."

The next quarterly meeting of the Royal Medico-Psychological Association will be held at 11, Chandos Street, W., on Friday, November 22nd, at 2.30 p.m., under the presidency of Dr. Reginald Worth. At 3 p.m. Dr. C. P. Blacker will open a discussion on the report of the Departmental Committee on Sterilization, in which Drs. D. Blair, W. A. Potts, P. K. McCowan, D. McRae, W. J. T. Kimber, and T. D. Power will take part.

A joint meeting of the Medical Section of the British Psychological Society and the Medico-Legal Society will be held at the Institute of Medical Psychology, Malet Place, W.C., on Wednesday, November 20th, at 8.30 p.m., when opening papers on "Nullity and Impotence" will be read by Dr. E. A. Bennet and Dr. Adrian Stephen, followed by two members of the Medico-Legal Society.

The next monthly clinical meeting for medical practitioners will be held at the Hospital for Epilepsy and Paralysis, Maida Vale, W., on Thursday, November 28th, at 3 p.m., when Dr. Wilfred Harris will give a demonstration on "Pains about the Head and Neck."

An extra meeting of the Section of Tropical Diseases and Parasitology of the Royal Society of Medicine will be held at 1, Wimpole Street, W., on Monday, November 25th, at 8.30 p.m., when Dr. Magarinos Torres of the Oswaldo Cruz Institute, Rio de Janeiro, will deliver in English a Lloyd Roberts Lecture entitled "Further Studies on the Pathology of Alastrim and Their Significance in the Variola-Alastrim Problem."

The Fellowship of Medicine announces the following courses: venereal diseases, at London Lock Hospital, November 18th to December 14th; infants' diseases, at Infants Hospital, November 25th to December 7th; proctology, at St. Mark's Hospital, November 25th to November 30th; and dermatology, at Hospital for Diseases of the Skin, Blackfriars, S.E., November 25th to December 7th. A week-end course will be given at Brompton Hospital on November 30th and December 1st, and there will be a special course in thoracic surgery at the same hospital from December 2nd to 6th. For M.R.C.P. candidates there will be an evening clinical and pathological course at National Temperance Hospital, on Tuesdays and Thursdays, at 8 p.m., from November 26th to December 12th; chest diseases at Brompton Hospital on two days a week at 5 p.m., from December 9th to January 10th (excluding Christmas week); chest and heart diseases at City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E., two days a week, at 6 p.m., from December 9th to January 10th (excluding Christmas week). Full information may be obtained from the Fellowship, 1, Wimpole Street, W.1.

November 22nd is the last date of entry for the course in infants' diseases, arranged for medical officers of welfare centres and others interested in nutritional disorders and dietetics, to be given at the Infants Hospital, Vincent Square, Westminster, S.W., from November 25th to 30th and December 2nd and 6th. Particulars may be obtained from the Fellowship of Medicine, 1, Wimpole Street, W.1.

The ninth annual Congress of Radiology will be held at Central Hall, Westminster, S.W., on December 4th, 5th, and 6th. In association with the congress an exhibition of *x*-ray apparatus will be held in the same building, under the auspices of the British *x*-ray industry, from 10 a.m. to 7 p.m.

The twelfth International Medical Tour, organized by the Société Médicale du Littoral Méditerranéen, will take place from December 26th to January 4th. All the resorts of the French Riviera, from St. Raphaël to Mentone, will be visited, as well as the hinterland. Receptions and scientific demonstrations have been organized, and special reductions have been granted by the railway companies and the hotels. Particulars can be had from the Société Médicale, 24, Rue Verdi, Nice (A.M.), and the French National Touring Office, 56, Haymarket, London, S.W.1.

Following the lectures on health and the law delivered last spring under the auspices of the Jewish Health Organization, a further series of ten lectures will be given on Saturdays, at 8.30 p.m., at the Whitechapel Art Gallery, High Street, Whitechapel, E., from November 23rd, 1935, to January 25th, 1936, both dates inclusive. The opening lecture on ante-natal care will be delivered by Dame Louise McIlroy. Dr. Reginald Jewesbury will lecture on the care of the infant in the first two years of life; Dr. Bernard Myers on the physical and mental welfare of the pre-school child; Dr. M. D. Eder on the care of the child in relation to his studies; Dr. H. Harris on play in childhood; Mrs. Susan Isaacs on the mental welfare of the child; Mrs. Winifred Raphael on the welfare of the worker; Professor V. H. Mottram on domestic hygiene; Mr. Phineas Quass on the protection of the worker; and Professor Samson Wright on the care of the adolescent. Admission is free, without ticket.

The following medical men were elected mayors on November 9th: Dr. H. G. Wood-Hill (Beccles), Dr. J. R. MacMahon (Poole), Dr. O. Wynne Griffith (Pwllheli), Dr. J. Wood (Brighouse), Sir Richard Luce (Romsey), and Dr. D. Arnott (Shaftesbury). Dr. H. B. Fletcher of Dronfield was elected an alderman at a meeting of the Derbyshire County Council on November 6th, to fill the vacancy created by the death of Dr. G. G. Macdonald of Crich.

The names of two other members of the medical profession have been brought to our notice as candidates at the General Election on November 14th. Mr. J. D. Cooke stood as Conservative candidate for the Hammersmith (South) constituency, and Lieut.-Colonel W. C. Ross, I.M.S.(ret.), as Liberal candidate for the Withington Division of Manchester.

H. K. Lewis & Co. Ltd. announce for early publication: *Milk: Production and Control*, by W. Clunie Harvey, M.D., and H. Hill; *The Principles and Practice of X-Ray Therapy*, by Ffrangcon Roberts, M.D.; and a third edition of Roxburgh's *Common Skin Diseases*.

At its meeting on October 14th the Société Médicale des Hôpitaux de Paris, on the proposal of Dr. J. Comby, paid homage to Sir Thomas Barlow, their corresponding member, on the occasion of his ninetieth birthday.

A fully equipped unit of the British Ambulance Service in Ethiopia, consisting of four doctors, five orderlies, and transport personnel, will sail under the auspices of the British Red Cross Society to-day (Saturday, November 16th) by s.s. *Sudan* and *Rampura* for Berbera, where it will be joined by twenty-four trained African dressers recruited from Kenya and Uganda. This unit will proceed to the Ogaden war zone. A few days later the British Red Cross Society will send a small unit of two doctors and transport officers with medical stores via the Sudan to the northern war zone, which is at present entirely without medical aid. This second unit will be reinforced later. The donations in response to appeals for funds for Red Cross help for Abyssinia, which have come from all over England and Scotland, and from Ceylon and Uganda, amount to about £22,000. Further contributions are urgently required, and may be sent to Sir Arthur Stanley, British Red Cross Society, 14, Grosvenor Crescent, S.W.1.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, five lines).

The **TELEGRAPHIC ADDRESSES** are
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*
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MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Switzerland for Asthma

"R. S. T." asks for information as to the best part of Switzerland for a holiday for a chronic case of asthma in a girl of 20; the best way of getting there; the cost of living—for example, in a recommended hotel; and the amount of relief that may reasonably be expected.

Tinnitus

Dr. S. A. MONTGOMERY (Bournemouth) writes in reply to "H. H. G." (*Journal*, November 2nd, p. 884): On the treatment of tinnitus I would refer him to Watkyn-Thomas and Yates's recent work on *Otology*, published by Lewis, 1932. Well-marked tinnitus of long standing is apt to be difficult, if not impossible, to cure. Having ruled out toxic, inflammatory, and local defects, it may be found that the newer method of alcohol injection into the nerve may effect relief for quite a considerable time. Section of the nerve itself may not stop the noises. It should not escape notice that these "head noises" are sometimes regarded by the unfortunate sufferer as a sign of incipient insanity, though he may seldom admit it even to his medical adviser. This idea must be combated. As a palliative I have found the exhibition of the following useful: nux vomica 1 drachm, diluted hydrobromic acid 1/2 oz., potassium bromide 2 to 4 drachms, syrup of lemon and chloroform water to 8 oz., giving 1/2 oz. doses twice daily before meals and again at bedtime. It is well to advise the sufferer to try to ignore the noises as much as possible, and to cultivate some hobby.

Income Tax

Replacement of Car—Succession to Firm

"J. A." bought a car for £225 in March, 1933, and sold it in July, 1935, for £85, buying another car for £185. What allowance is due on the "renewal" basis, and would it have been better to have claimed "depreciation"? His partner left the practice in March, 1935, and "J. A." is now carrying on the practice himself; how does this affect the basis of assessment, and how will it be affected if he takes a new partner?

⁂ The cost of renewal was £100—that is, the out-of-pocket expenditure—and that amount can be treated as a professional expense of the year 1935, thereby reducing the amount of the liability for 1936–7. As the old car cost more than the new one, it would have been better to claim the "depreciation" and "obsolescence allowances"—which would save tax on £225 – £185 = £40, and "J. A." can claim to reopen the assessment for 1934–5 onwards accordingly—provided that a renewal claim was not made in respect of the car bought in 1933. Unless "J. A." and his former partner join in requiring the practice to be regarded as having ceased at the date of the latter's withdrawal from the practice the *basis* of the assessment is not affected. Consequently "J. A." will have to bear tax on his additional share of the assessment from March, 1935, onwards, but as the basis of calculation of the assessment remains unaltered no period can be brought in more than once.

LETTERS, NOTES, ETC.

Request for Pathological Material

Dr. G. GORDON LENNON (Department of Surgery, Marischal College, Aberdeen) writes: I should be obliged if you would convey through the *British Medical Journal* my desire to obtain post mortem a pituitary (including most of its stalk) from a known case of diabetes insipidus. Should any pathologist perform a post-mortem on such a case I should be very grateful to him if I may have it sent to the above address for examination of certain conditions in which I am interested.

Faecal Impaction

Dr. C. CARRICK BREWIS (Yeovil) sends the following note, which he heads "*Impacted Faeces: An Amazing Cause*": I was called urgently to see Mrs. X., on account of acute abdominal pain, vomiting, and constipation lasting two days. On arrival I asked her to show me where the pain was. She placed her hand in the region of the perineum. On inspection I found the posterior wall of the vagina bulging through the vulva. Rectal examination revealed a large mass, consisting of small hard particles completely filling the pelvic cavity. It was easy to produce some of these, which proved to be bits of Indian corn. My district nurse, with her trusty enema, soon delivered the patient of nearly 2 lb. of maize! The patient is a "glover," and sits all day at a machine. For some years she has been in the habit of filling her pocket with this chicken food, just quietly pecking away at it while at work. The seeds were bitten into halves and swallowed without chewing.

Dried Milk Standards

Cow & Gate Ltd. have issued a pamphlet setting out the standards aimed at in the preparation of their products. Thus "Selected Standards for Milk Foods in Infant Feeding" is in the first place a series of statements of the ideals to be attempted and then a recital of the claims made for the Cow & Gate foods in relation to such standards. This well-known British milk needs no introduction at this stage of its popularity, and if some are inclined to criticize the cost (an aspect not touched upon in the pamphlet) it is clear from the details set out that the public is being asked to pay for a well-selected, pure product. The numerous special brands of Cow & Gate available must also obviously add to the general cost of production. The matter here presented in an attractive form should lead many to take advantage of the invitation extended to all doctors to visit the factories at Guildford.

Diphtheria Immunization

Dr. F. O. TAYLOR (Coldingham, Berwickshire) writes: In answer to Dr. A. R. Eates's last point (*Journal*, November 9th, p. 932) I should like to state that there was an unprecedented epidemic of diphtheria in this country last year, and most of the immunization done was long after most of the cases had been notified. In fact, the increase in "immunizings" kept pace with or followed upon the increase of cases. To put this the wrong way round is unfair, and shows how statistics can be falsified to meet a certain point of view. The epidemic fizzled out at about the time the campaign of immunization became general—very much later than many of us would have liked.

Haematemesis in Infancy

Dr. P. G. DOOLEY (Ilford) writes: I have been much interested in the recent correspondence in the *Journal* relating to cases of haematemesis in the newborn. The case described by Dr. R. Force-Jones (October 19th) would clinically appear to justify a diagnosis of gastric ulcer. It is true that in these cases punched-out ulcers have been found post mortem in the stomach, duodenum, and oesophagus, while the pathology strongly suggests that the site of the "ulcer" is due to the digestion and absorption of the necrosed area caused by the original haemorrhage. Melaena and jaundice may of course occur singly or together in these cases. It is possible that in this case, and also in the case mentioned by Dr. J. S. Coleman (November 9th), we are dealing with manifestations of the same underlying process—a too rapid haemolysis, due to relative deficiency of iron. From the therapeutic angle there appear to be several methods of dealing with these conditions. I recently had a case of twins, one of whom died immediately after birth, while the other, a rather weakly infant, had several attacks of melaena on the second day. Almost at once a severe generalized oedema appeared, and the infant's condition seemed hopeless. The mother was not in a position to spare any blood, and it was decided to use horse serum in the form of an intramuscular injection of 4,000 units of anti-diphtheria serum. The result was gratifying in so far as the symptoms disappeared and the infant began to recover. These cases, to my mind, illustrate the importance of adequate diet in the prospective mother and the giving of suitable forms of iron ante-natally where any doubt exists in regard to the food factor.

"Worcester" Scholarships

Two scholarships in reduction of fees will be awarded for entry to the Thames Nautical Training College, H.M.S. *Worcester*, Greenhithe, Kent, at the Lent term, beginning January 16th, 1936. The scholarships are valued at £50 per annum, tenable for two years, and successful candidates will be trained for a career as executive officers in the Merchant Navy. Candidates must be aged 15 or 16, and will have to undergo an examination in school subjects. Applications must be received before December 7th, and full conditions governing the awards and forms of application are obtainable from the Secretary, Ingress Abbey, Greenhithe, Kent.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 51, 52, 53, 54, 55, 56, 57, and 61 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 58 and 59.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 224.